

State Compendium - Region 5

Programs and Regulatory Activities Related to Animal Feeding Operations

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Prepared For:
U.S. Environmental Protection Agency
Office of Wastewater Management
Water Permits Division
1200 Pennsylvania Avenue
Washington, DC 20460

Prepared by:
Tetra Tech, Inc.
10306 Eaton Place
Suite 340
Fairfax, VA 22030

CHAPTER 1. INTRODUCTION

This compendium has been developed to support the U.S. Environmental Protection Agency's (EPA) efforts to address the environmental and public health problems associated with animal feeding operations (AFOs) and concentrated animal feeding operations (CAFOs). The compendium is a compilation of AFO-related state program and state initiative information intended to illustrate how states are regulating AFOs, with a specific focus on the use of permits or similar mechanisms. This document is not intended as an evaluation of the effectiveness of individual state efforts.

Most of the State programmatic and regulatory information gathered and presented in this document pertains to controlling water quality impacts from AFOs. Although some states have designed regulatory standards to control non-water quality impacts (e.g., setback requirements for odor control), the vast majority of information presented is based on state efforts to address water quality and nutrient management issues.

The *Compendium* has been compiled from a number of publicly available information sources, including:

- Previously published research and existing surveys of State AFO and CAFO programs
- World Wide Web pages of state governments, agencies, and national agriculture organizations
- Select publicly accessible state statutes and regulations (generally accessed via the Web)
- National Pollutant Discharge Elimination System (NPDES) permits developed for CAFOs
- Summaries of State program information provided by EPA regional offices

Based on these sources of publicly available information, the *Compendium* represents a reasonable appraisal of how states are addressing AFO-related environmental problems. Nevertheless, the information presented here is subject to several important limits. First, in compiling this compendium no new formal survey of the states was conducted, nor was a comprehensive review of each state's regulations undertaken, as both were beyond the scope of this task. Thus, in some instances information presented here may be limited or minor gaps may exist. Second, state regulation of AFOs and CAFOs can be complex, involving both federal and state laws and regulations, often originating at the state level from several different agencies, with numerous variations in approaches, requirements, and jurisdiction among the different states. Consequently, different levels of information may be available among states and even between relevant agencies within a state. Finally, the various sources of publicly available information used were reviewed and compiled over a period of time during which many States were reexamining and revising their AFO regulations. As a result, this compendium is by necessity a working document that depicts reasonably current practices, but may in some instances be superseded by recent state programmatic and regulatory changes. The information presented here must be considered subject to these limits and specific regulatory requirements should be verified with state or EPA authorities as appropriate.

The *Compendium of State AFO Programs* consists of four chapters, including this introduction, and three Appendices. Chapter 2 of this document provides a national overview of State AFO initiatives based on the publicly available data. It attempts to summarize how states regulate

AFOs and highlights key aspects of State AFO programs.

Chapter 3 presents individual state profiles. Each profile includes available information addressing: background, lead regulatory agency, state regulations regarding AFO/CAFOs, types of permits, permit coverage, permit conditions, enforcement information, state voluntary programs, additional state-specific information, and references.

Finally, the *Compendium* contains three Appendices. Appendix A describe methods used to develop the *Compendium* and highlights the limits of the data collection efforts. Appendix B lists some of the more frequently used acronyms. Appendix C provides a glossary of useful terms associated with animal feedlots.

CHAPTER 2. NATIONAL SUMMARY OF STATE INITIATIVES

This chapter presents a national overview of state AFO regulatory programs and initiatives based on a review of publicly available data. The discussion begins with a brief review of the respective federal and state roles in administering the National Pollutant Discharge Elimination System (NPDES) program (Section 2.1), followed by a summary of the federal regulations addressing AFOs and CAFOs (Section 2.2). The remainder of this chapter summarizes State Programs/Initiatives (Section 2.3) and Recent State Initiatives/Trends (Section 2.4).

2.1 Overview of EPA/State Roles in NPDES Program

Under the Clean Water Act (CWA), NPDES permits may be issued by EPA or any state authorized by EPA to implement the NPDES program. Currently, 44 states are authorized to administer the base NPDES program.¹ (The base program includes the federal requirements applicable to AFOs and CAFOs, which are discussed below).² To become an authorized NPDES state, the requirements imposed under a State's NPDES program must at a minimum be as stringent as the requirements imposed under the federal NPDES program. The states, however, may impose requirements that are broader in scope or more stringent than the requirements imposed under the federal NPDES program. In states not authorized to implement the NPDES program, the appropriate EPA Regional office is responsible for implementing the NPDES program.

Regarding the regulation of AFOs, 44 of the states authorized to implement the NPDES program have some form of program requirements generally deemed to be as stringent as the federal requirements applicable to AFOs. Yet, it appears that only a handful of states rely solely on their State NPDES regulations to address CAFOs. Rather, most use their NPDES regulations as one part of their CAFO program and supplement these requirements with additional provisions.

Because the federal CAFO regulations constitute the core program requirements in many authorized states and are used for purposes of comparison and summary in this document, these regulations are briefly summarized below.

2.2 Overview of EPA AFO/CAFO Definitions and Effluent Limits, Under the Federal NPDES Program

Under the federal NPDES program, EPA has developed regulations that define which facilities constitute AFOs and which constitute CAFOs. Under these regulations, facilities that constitute CAFOs are defined as point sources for purposes of the NPDES program. No facility may discharge pollutants from a point source to waters of the United States without a NPDES permit.

¹ State NPDES authorization may be obtained for the base program, as well as for components addressing federal facilities, pretreatment, general permits, and sludge. The Virgin Islands is also authorized to administer the NPDES program.

² Alaska, Arizona, Idaho, Massachusetts, New Hampshire, and New Mexico are not authorized to implement the NPDES program. Oklahoma is delegated to implement the NPDES program, however; Oklahoma does not issue a general NPDES permit specifically for CAFOs and is in effect unauthorized to administer the CAFO portion of the NPDES program. Oklahoma CAFOs should apply for coverage under the general NPDES CAFO permit issued by U.S. EPA Region 6 (See 63 FR 53002).

The existing federal regulatory definitions of AFOs and CAFOs are provided at 40 *C.F.R.* § 122.23 and Part 122, Appendix B. These regulations define an AFO as a facility that meets the following criteria:

- Animals have been, are, or will be stabled or confined and fed or maintained for a total of 45 days or more in any 12-month period.
- Crops, vegetation, forage growth, or post-harvest residues are not sustained in the normal growing season over any portion of the lot or facility.³

Federal regulations define a CAFO generally as an animal feeding operation that:

- Confines more than 1,000 animal units (AUs)⁴, or
- Confines between 301 to 1,000 AUs and discharges pollutants:
 - ▶ Into waters of the United States through a man-made ditch, flushing system, or similar man-made device, or
 - ▶ Directly into waters of the United States that originate outside of and pass over, across, or through the facility or otherwise come into direct contact with the animals confined in the operation.

The CAFO regulatory definition also provides that facilities that discharge pollutants only in the event of a 25-year, 24-hour storm event are not defined as CAFOs.

Under existing federal regulations, the permitting authority (e.g., EPA or an authorized state) can designate an AFO as a CAFO upon determining that the operation is a significant contributor of pollution to waters of the United States. This determination, which takes a number of factors into account (e.g., slope, vegetation, and the proximity of the operation to surface waters), is based on an onsite inspection by the agency that issues the permits and is subject to certain discharge conditions.

In addition to the provisions that define AFOs and CAFOs, EPA has promulgated an effluent limitation guideline (ELG) applicable to feedlots (feedlots are defined in the same manner as CAFOs) (see 40 *C.F.R.* § 412). This regulation generally establishes that CAFOs are subject to a zero discharge standard except for discharges, resulting from a catastrophic or chronic storm event, that occur from a properly maintained and operated waste management system designed to control waste and runoff from a 25-year, 24-hour storm.

2.3 State Programs/Initiatives

³ 40 *CFR* 122.23 (b)(1).

⁴ The following examples are animal quantities equivalent to 1,000 animal units: 1,000 slaughter and feeder cattle, 700 mature dairy cattle, 2,500 swine each weighing more than 25 kilograms, 30,000 laying hens or broilers (if a facility uses a liquid manure system), and 100,000 laying hens or broilers (if a facility uses continuous overflow watering). See 40 *CFR* Part 122, Appendix B.

The national summary of state programs and initiatives is divided into four categories: (1) regulatory programs used by states, (2) State definitions of CAFO/AFO, (3) use of general versus individual permits, and (4) key permit conditions.

2.3.1 Regulatory Approach

Figure 1 provides a state-by-state depiction of the AFO permitting mechanisms available in each state. States have five categories of permitting mechanisms:

- Federally Administered NPDES Program
- Federally Administered NPDES Program and State Administered Non-NPDES Program
- State Administered NPDES Program only
- State Administered NPDES Program and State Administered Non-NPDES Program
- State Administered Non-NPDES Program only

As discussed above, 44 states are authorized to implement the base NPDES CAFO program. As illustrated in Figure 1 and summarized in Table 1, of the 44 states authorized to implement the NPDES CAFO program:

- Thirty-two states administer a State NPDES CAFO program in combination with some other state permit, license, or authorization program. Typically, this additional State authorization is a construction or operating permit.
- Seven states regulate CAFOs exclusively under their state NPDES authority (HI, NJ, NV, NY, RI, TN, WV).
- six states have chosen to solely regulate CAFOs under State non-NPDES programs (CO, MI, NC, OR, SC, VA).

Of the six states not authorized to administer the NPDES program:

- Three rely solely on federal NPDES permits to address CAFOs (AK, MA, NH).
- Three impose some form of a state non-NPDES program requirement, although EPA remains responsible for administering the NPDES CAFO requirements in these states (AZ, ID, NM).

While Oklahoma is one of the 44 NPDES-delegated states, Oklahoma does not have a general NPDES permit specific to CAFOs. In this special case, Region 6 administers the portion of Oklahoma's NPDES program that deals with CAFOs by covering Oklahoma CAFOs under the Region 6 general NPDES permit for CAFOs. Oklahoma also uses a State non-NPDES operating permit to regulate state CAFOs.

Overall, 28 states have a combination of permitting mechanisms available for addressing environmental impacts from AFOs. Eleven states exclusively regulate CAFOs under a state or federal NPDES program. Five states (CO, MI, NC, SC and OR) only regulate AFOs under a

state non-NPDES program, with Colorado and Michigan not requiring any AFOs to obtain any form of operating permit.

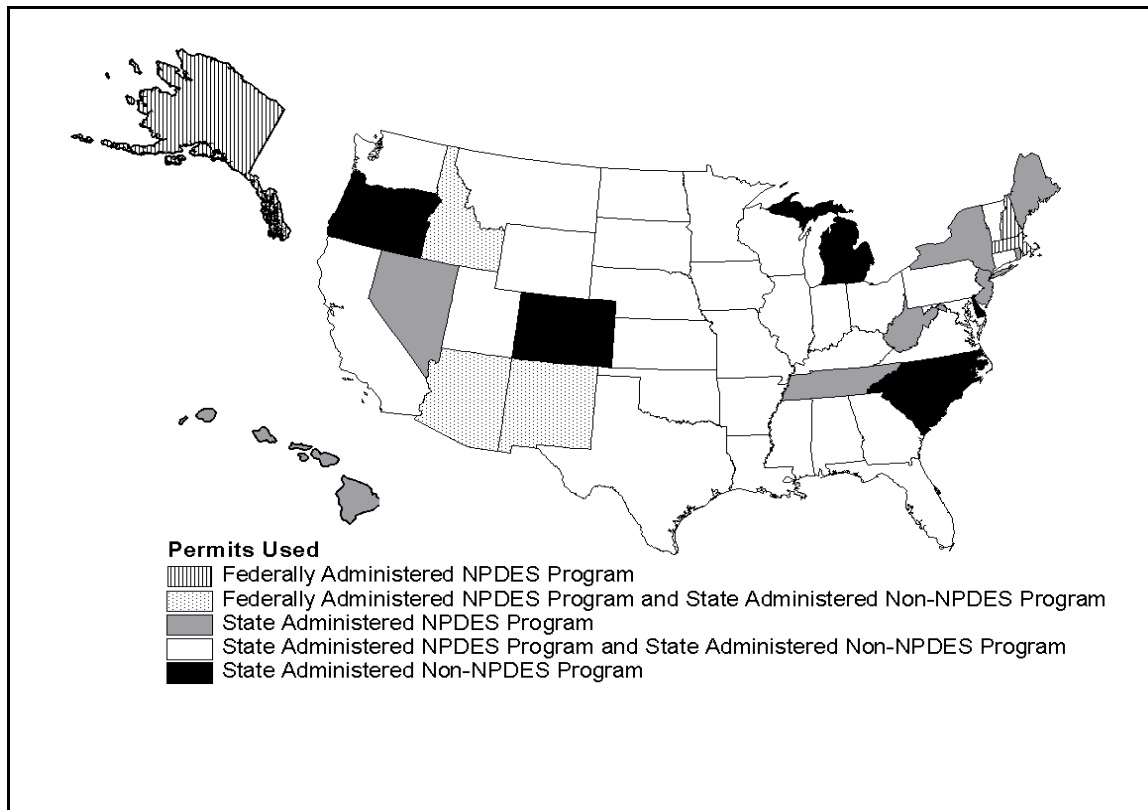


Figure 1. Regulatory Mechanisms for AFO Permitting in Each State

2.3.2 State Definitions of CAFO

EPA and state definitions of a CAFO are important because the definitions determine the scope of the existing federal and state regulatory programs. EPA's definition of a CAFO is based on the length of time animals are confined, the number of animals confined (animal units), and whether or not the facility directly discharges pollutants into waters of the United States. Virtually all state NPDES CAFO programs use the federal definition for CAFO. The vast majority of states also use the federal definition of CAFO for State non-NPDES CAFO programs. Several states, however, use a lower numeric threshold (number of animal units) for non-NPDES permitting. For example, Minnesota issues individual NPDES permits to confined feeding operations as defined by federal regulation and State feedlot permits (non-NPDES) to facilities with more than 10 animal units (calculated by using the formula used in the federal definition).

States that use the federal definition of CAFO may also increase the scope of coverage required through state NPDES programs by reducing the number of animals (number of animal units) a facility can confine before being subject to permitting.

Table 1. Identification of Permit Type and Permit Requirements Within State AFO Programs in the United States¹

State	State NPDES	State Control Mechanism ² (non-NPDES)		General/ Individual Permits				Permit Conditions ³			
		Construction	Operating	NPDES		State non-NPDES		Effluent ⁴	Management	Land Application	
				General	Individual	General	Individual			Agronomic Rates	Offsite
AL	✓	✓	✓	✓	✓			✓	✓	✓	
AK	ND ⁵										
AR	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓
AZ	ND		✓	✓		✓				✓	
CA	✓	✓	✓	✓		✓	✓	✓		✓	
CO	*	✓	✓				✓	✓	✓	✓	
CT	✓	✓			✓		✓	✓	✓	✓	
DE	✓		✓						✓		
FL	✓	✓	✓		✓			✓	✓	✓	
GA	✓		✓	✓	✓		✓		✓	✓	
HI	✓				✓						
IA	✓	✓	✓		✓		✓	✓	✓	✓	✓
ID	ND	✓	✓	✓			✓	✓	✓	✓	✓
IL	✓	✓	✓	✓	✓		✓	✓	✓	✓	
IN	✓	✓	✓		✓				✓	✓	
KY	✓	✓	✓			✓	✓	✓	✓	✓	✓
KS	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓

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State	State NPDES	State Control Mechanism ² (non-NPDES)		General/ Individual Permits				Permit Conditions ³			
		Construction	Operating	NPDES		State non-NPDES		Effluent ⁴	Management	Land Application	
				General	Individual	General	Individual			Agronomic Rates	Offsite
LA	✓		✓		✓		✓	✓	✓	✓	
MA	ND										
MD	✓	✓	✓	✓	✓		✓	✓	✓	✓	
ME	✓		✓		✓			✓	✓	✓	✓
MI	*										
MN	✓	✓	✓		✓		✓	✓	✓	✓	
MO	✓	✓	✓	✓	✓		✓	✓	✓	✓	
MS	✓		✓	✓	✓	✓	✓	✓			
MT	✓	✓	✓	✓	✓	✓	✓	✓		✓	
NE	✓	✓	✓		✓		✓	✓	✓	✓	
NC	*		✓			✓	✓	✓	✓	✓	
ND	✓	✓	✓		✓		✓	✓	✓	✓	
NH	ND										
NJ	✓				✓					✓	
NM	ND		✓				✓		✓	✓	
NV	✓				✓						
NY	✓			✓	✓			✓	✓	✓	

Table 1. Identification of Permit Type and Permit Requirements Within State AFO Programs in the United States¹

State	State NPDES	State Control Mechanism ² (non-NPDES)		General/ Individual Permits				Permit Conditions ³			
		Construction	Operating	NPDES		State non-NPDES		Effluent ⁴	Management	Land Application	
				General	Individual	General	Individual			Agronomic Rates	Offsite
OH	✓	✓	✓	✓	✓		✓	✓	✓	✓	
OK	✓	✓	✓	✓	✓		✓	✓	✓	✓	
OR	*	✓	✓			✓	✓			✓	
PA	✓		✓	✓	✓			✓	✓	✓	✓
RI	✓				✓						
SC	*	✓	✓			✓	✓	✓	✓	✓	
SD	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
TN	✓			✓	✓			✓	✓	✓	
TX	✓		✓	✓	✓		✓	✓	✓	✓	
UT	✓	✓	✓	✓	✓		✓		✓		
VA	✓		✓			✓	✓	✓	✓	✓	
VT	✓	✓					✓	✓	✓	✓	
WA	✓		✓	✓	✓	✓	✓	✓	✓	✓	
WI	✓	✓	✓	✓	✓			✓	✓	✓	
WV	✓							✓	✓	✓	
WY	✓	✓			✓		✓	✓	✓	✓	
Totals	38	27	36	20	32	12	31	35	38	40	8

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State	State NPDES	State Control Mechanism ² (non-NPDES)		General/ Individual Permits				Permit Conditions ³			
		Construction	Operating	NPDES		State non-NPDES		Effluent ⁴	Management	Land Application	
				General	Individual	General	Individual			Agronomic Rates	Offsite

¹ Blank data cells indicate that the program element was not a primary component of the state program or information was not sufficient to make a determination.

² State control mechanisms include all forms of formal state approval required to construct or operate an AFO, such as state issued non-NPDES permits, letters of approval, and certificates of coverage.

³ Permit conditions are requirements imposed through either NPDES or state non-NPDES programs.

⁴ Effluent limits refer to whether or not a state imposes federal effluent limits to AFOs/CAFOs (i.e., no discharge allowed except during 25 year, 24- hour storms). A check could indicate that a state imposes effluent limits that are more strict than the federal requirements (e.g., Arkansas does not allow any discharges regardless of storm events).

⁵ ND = States not authorized to administer the NPDES program.

* Although authorized to administer the NPDES program, the state chooses to use a separate program to address AFOs.

Some states have unique definitions for their livestock regulatory programs that do not follow the federal definition (See Table 2). States typically base their definition on number of animals confined, weight of animals and design capacity of waste control system, or gross income of agricultural operation. These definitions are exclusively applied to State non-NPDES programs.

Table 2. Selected State CAFO Definitions that Differ from the EPA Definition and Use of the Definition in Regulatory Control

State	Classification Scheme	Facilities Subject to State Non-NPDES Regulatory
Indiana	Number of animals	Operation with 600 swine, 300 cattle, or 30,000 birds
Iowa	Weight of animals in a confinement feeding operation	Permitting threshold for construction permit based on type of waste control system and design capacity (based on weight) of that system (e.g., an anaerobic lagoon with a design capacity of 400,000 lbs of bovine requires construction permits)
Kansas	Number of animals	Operations with 300 animal units
Maryland	Gross income and animal units	All agricultural operations with incomes of at least \$2,500 or eight animal units
North Carolina	Number of animals	Operations designed for 100 head of cattle, 75 horses, 250 swine, 1,000 sheep, or 30,000 birds

One important difference between state livestock regulatory programs and the federal program is that numerous states have addressed the issue of authority to issue permits (or other control mechanisms) to CAFOs by requiring that all or a specified subgroup of CAFOs regardless of whether they have a direct point source discharge of pollutants to U.S. waters obtain a permit.⁵ This requirement is imposed under state, not federal regulations.

For example, Arkansas requires all AFOs that use a liquid waste management system to obtain permit coverage under either the State-issued general permit or an individual permit. AFOs with dry waste management systems are not automatically required to obtain a permit; however, all facilities with more than 1,000 animal units are subject to coverage under the State's general permit. This is an important distinction because states have opted to expand the scope of facilities that fall within the definition of a CAFO by eliminating the requirement that a facility must have a discharge before being considered a CAFO. In other words, states are requiring large facilities with a potential to discharge to abide by CAFO rules.

2.3.3 General/Individual Permits

The regulation of CAFOs is challenging, in part, because of the large number of facilities across the country. In 1995 it was estimated that 450,000 operations nationwide confined or concentrated animals, of which a very conservative estimate indicated that at least 6,600 had

⁵ Preliminary data indicate that the following states require all or a subset of CAFOs (under various definitions) to obtain permits: AL, AR, AZ, CO, DE, IA, ID, IN, KS, KY, MN, MS, NC, OH, OR, SC, WY.

more than 1,000 animal units and may have been considered CAFOs under the federal definition⁶. More recent estimates describe an AFO universe of approximately 375,700 operations of which approximately 12,600 are AFO operations with more than 1,000 AUs, 26,500 are AFO operations with 300-1,000 AUs, and 336,600 are AFO operations with fewer than 300 AUs.⁷ One way of reducing the administrative burden associated with permitting such large numbers of facilities is through general permits. Existing regulations provide that general permits may be issued to cover a category of discharges within a geographic region. Within such areas, general permits may regulate either storm water point sources or a category of point sources that involves similar operations with similar wastes. Operations subject to the same effluent limitations and operating conditions, and requiring similar monitoring, are most appropriately regulated under a general permit. EPA and the states are using general permits to regulate CAFOs, and this trend appears to be increasing. South Dakota, for example, has established two general permits for CAFOs, one to address swine operations and another for all other livestock.

Of the 44 states authorized to implement the NPDES program:

- Twenty have issued a State NPDES general permit for CAFOs (this number excludes federally issued general permits).
- Twelve have issued a state non-NPDES general permit for CAFOs.

Of the six states not authorized to administer the NPDES program (this excludes Oklahoma), four are subject to a federal general permit.⁸

2.3.4 Permit Conditions

Normally, a NPDES permit will include several types of permit conditions, including technology-based effluent limits (i.e., zero discharge except for discharges resulting from chronic or catastrophic rainfall events if a facility is designed to hold process wastewater and runoff from a 25-year, 24-hour storm for CAFOs subject to § 412), water quality-based effluent limits (if the technology-based limit will not ensure compliance with State water quality standards), monitoring and reporting conditions, special conditions (e.g., conditions that impose additional controls beyond numeric limits, such as best management practices [BMPs]), and standard conditions (e.g., duty to comply, duty to ensure proper operation, and duty to provide information).

The federal technology-based effluent limit for CAFOs is “no discharge.” The effluent limit includes an exception in the event of chronic or catastrophic rain for facilities that have been

⁶ *Animal Agriculture: Information on Waste Management and Water Quality Issues*, General Accounting Office, 1995.

⁷ 66 FR 2985, January 12, 2001.

⁸ CAFOs in New Mexico and Oklahoma are subject to an EPA Region 6 general permit; facilities in Idaho and Alaska are subject to an EPA Region 10 permit, although no facilities are covered under a NPDES permit in Alaska; and CAFOs in Arizona are subject to an EPA Region 9 general permit, although no facilities are covered under the general permit. New Hampshire, and Massachusetts are located in EPA Region 1, which does not have a general NPDES permit for CAFOs.

designed, constructed, and operated to contain all waste water and runoff from a 25-year, 24-hour storm. States not authorized to implement the NPDES program must use this federal effluent limit.

Authorized states generally are equally as stringent, but may be more stringent. Based on a review of available data, of the 44 states authorized to implement the NPDES program 34 use the federal effluent limitation guideline and 6 use a more stringent limit.

Some states with more stringent effluent limits may partially or totally prohibit discharges related to storm events. In Arkansas, for example, the effluent limit prohibits discharges from liquid waste management systems, including periods of precipitation greater than the 25-year, 24-hour storm event. California requires no discharges from new waste control structures even during 100-year storms. And in Iowa, confinement feeding operations (i.e., roofed AFOs) are prohibited from any direct discharge and must dispose of manure in a manner that will not cause a pollution of surface or ground water.

A key concern regarding the management of CAFO waste is ensuring appropriate land application. Land application is the primary management practice used by CAFOs to dispose of animal waste. Several estimates indicate that 90 percent of CAFO-generated waste is land applied. Where properly done, land application of CAFO waste fosters the reuse of the nitrogen, phosphorus, and potassium in these wastes for crop growth. However, where such wastes are excessively or improperly applied, land application can contribute to water quality impairment. Thirty-four states impose requirements addressing land application either through NPDES or non-NPDES programs. Typical requirements include that CAFO waste be applied at agronomic rates and that CAFO operators develop Waste Management Plans.

The breakout of state requirements is as follows:

- Forty states require that CAFO waste be land applied at agronomic rates.
- Thirty-eight states require the development and use of Waste Management Plans.
- One state, Georgia, issues land application system (LAS) permits.

Agronomic rates are typically based on the nitrogen needs of crops, although some states specify that waste be applied at agronomic rates for nitrogen and phosphorous. The determination of agronomic rates varies from state to state. Some states do not address how agronomic rates should be determined, while others, such as Colorado, require CAFO operators to complete detailed plans and field sampling to determine the appropriate amount of waste that can be land applied.

The complexity and details required in a waste management plan also vary among states. Some states do not explicitly identify what items must be addressed in a waste management plan, whereas others have detailed requirements. Typically, CAFO operators are required to address these items in a waste management plan:

- Estimates of the annual volume of waste.
- Schedules for emptying and applying wastes.
- Rates and locations for applying wastes.
- Provisions for determining agronomic rates (i.e., soil testing).

- Provisions for conducting required monitoring and reporting.
- Written agreements with landowners to accept liquid waste.

2.4 Recent State Initiatives/Trends

One clear indication that states have an increasing interest in expanding their efforts to control water quality impacts from AFOs is the promulgation of new state AFO laws, regulations and program initiatives. At least 28 states have developed new laws or regulations related to AFOs since 1996. For example, Kansas, Kentucky, North Carolina, and Wyoming passed legislation regarding swine facilities, with Kentucky and North Carolina imposing moratoriums on the expansion of swine AFOs until state management/regulatory plans could be developed. Mississippi also has imposed a 2-year moratorium on any new CAFOs.

Alabama's recent efforts include developing an NPDES general permitting rule and a Memorandum of Agreement outlining state agency responsibilities as they relate to AFOs. Washington's Dairy Law subjects all dairy farms with more than 300 animal units to permitting and requires each facility to develop NRCS-approved nutrient management plans. Indiana's Confined Feeding Control Law also requires AFOs to develop waste management plans and receive state approval for operating AFOs.

2.5 Summary

State efforts to manage AFOs are carried out through issuance of NPDES permits and state issued non-NPDES permits and/or authorizations. State AFO regulatory programs are directed in large part at controlling the potential environmental impacts on surface water, but also at protecting ground water and managing industry growth. State permits and/or authorization requirements are often imposed regardless of NPDES requirements. State non-NPDES AFO programs are often more stringent than NPDES programs and state efforts often extend coverage to smaller classes of AFOs. Further, the implementation of state non-NPDES programs often receives more agency attention than the implementation of NPDES programs, with several states actively choosing not to use NPDES permits.

While specific state efforts relating to AFOs vary, most states regulate facilities through permitting programs that require animal waste disposal systems to be constructed to prevent the discharge of animal wastes to waters of the United States. Coverage under state permitting programs depends on such criteria as facility size, potential for discharge, type of facility, and type of waste control. Information indicates that state agencies are increasing their commitment of resources to address environmental concerns from AFOs.

CHAPTER 3. STATE PROFILES

This chapter presents individual profiles of state programmatic and regulatory efforts addressing AFOs for each of the 50 states. These profiles provide a state-by-state summary of the key elements within State AFO regulatory programs. The profiles summarize existing State activities to address environmental and health impacts from AFOs. The profiles provide a comprehensive overview of each State program, including the following:

- A description of the lead regulatory agency(ies) (i.e., permitting authority) and agency(ies) responsible for directing voluntary programs.
- State regulations that address AFOs and voluntary programs that encourage regulatory compliance or the use of best management practices.
- The types of permits issued and the permitting processes for each state, the circumstances for which permits are required (i.e., permit coverage), and the requirements and responsibilities of AFO owners and operators (i.e., permit conditions).
- State enforcement activities, inspection programs, and staffing and funding levels dedicated to addressing AFOs.
- Examples of innovative or interesting state projects or programs to control the potential negative environmental impacts of AFOs.

If information on a particular program element was not readily available, or not identified, the following phrase was used: “no information was found in publicly available sources.” Figure 3.1 presents the outline used for each of the state profiles.

- 1.0 Background
- 2.0 Lead Regulatory Agency
- 3.0 State Regulations Regarding AFOs/CAFOs
- 4.0 Type of Permits
 - NPDES*
 - Other (general use or general agriculture permits, construction permits, and operating permits)*
- 5.0 Permit Coverage (potential nuisance and/or location)
- 6.0 Permit Conditions
 - Approvals (permits, letters of intent, or certificates of coverage)*
 - Lagoon Design and Specifications (seepage limits, etc.)*
 - Discharge Rules*
 - Waste Management Plans*
 - Separation Distances*
 - Land Application Requirements*
 - Other Requirements*
- 7.0 Enforcement Information
 - General Enforcement Information*
 - General Inspection Information*
- 8.0 Voluntary Programs
- 9.0 Additional State-Specific Information
 - Cooperative Extension Service*
 - Comprehensive Nutrient Management Plan (CNMP)*
 - Memorandums of Understanding/Agreement (MOUs/MOAs)*
 - Other Information*
- 10.0 References

Figure 3.1 Outline for Profiles of State Programs and Regulatory Activities Related to Animal Feeding Operations

Illinois' CAFO Program

1.0 Background

Based on information provided to EPA by USDA, there are 1,040 AFOs with 300 to 1,000 animal units. Based upon Agricultural Statistics of 1999, the number of CAFOs with more than 1,000 AUs is approximately 550 (Willhite, 2000). These are primarily in the swine sector (USDA, 1999; USDA, 2000).

Since 1979 the Illinois Environmental Protection Agency (IEPA) has operated a livestock waste management program that provides for inspection of livestock facilities throughout the state (Illinois EPA 1996a). However, in response to public concerns regarding the growth of large livestock production facilities in Illinois, the Illinois General Assembly adopted the Livestock Management Facilities Act (LMFA) on May 21, 1996. Following the adoption of the LMFA, the Illinois Pollution Control Board (IPCB) and the Illinois Department of Agriculture (IDA) submitted emergency rules to address the influx of large livestock facilities to Illinois. These rules, which specifically addressed lagoon design, were adopted as part of the final permanent LMFA rules on May 20, 1997. The LMFA regulations cover operator certification, lagoon closure, lagoon registration, waste management plans, and location of new livestock management facilities (Willhite). Since its initial passage in 1996, the LMFA has been amended twice in 1998 and in 1999.

2.0 Lead Regulatory Agency

Illinois Department of Agriculture (IDA) administers the Livestock Management Facilities Act and Illinois Environmental Protection Agency (IEPA) administers the NPDES program for CAFOs. Information about IDA and IEPA can be found at www.agr.state.il.us/ and www.epa.state.il.us/, respectively.

3.0 State Regulations Regarding AFOs/CAFOs

The NPDES requirements and livestock waste regulations are contained in the State of Illinois Rule and Regulations Title 35, Environmental Protection, Subtitle E: Agriculture Related Pollution, Chapter I: Pollution Control Board, Parts 501-506. Part 506 addresses standards for the design and construction of livestock waste handling facilities. This regulation became effective in May 1997. Title 35 also contains additional regulations pertaining to animal waste: Part 560 (Design Criteria for Field Application of Livestock Waste), Part 570 (Design and Maintenance Criteria Regarding Runoff Field Application Systems, and Part 580 (Procedures for Reporting Releases of Livestock Waste from Lagoons). In February 1999, Part 506 was amended by adding a requirement that the owner/operator of a livestock waste lagoon report any release to the environment within 24 hours to the Illinois Emergency Management Agency.

In addition there is also Title 8, Agriculture and Animals, Chapter I: Department of Agriculture, Subchapter t: Waste Management, Part 900, Livestock Management Facility Regulations. These regulations are being developed to implement the 1997 and 1999 revisions to the Livestock Management Facilities Act. The information below is a summary of the changes made to the LMFA that the revised rules will implement.

LMFA requirements as a result of 1998 amendments include:

- Secondary containment around waste lagoons.
- Public informational meetings for new or modified lagoon construction.
- Waste release reporting requirements for operators of livestock waste lagoons.
- Inspections of lagoons.
- Odor control enhancements for waste lagoons and other waste storage structures.

New LMFA requirements as a result of 1999 amendments:

- Filing of a notice of intent to construct forms prior to construction.
- Filing of construction plans for all waste storage structures.
- Consideration of eight siting criteria at public informational meetings.
- Siting prohibitions in environmentally sensitive areas such as floodplains, karst areas, and shallow aquifer material areas.
- Summation of animal units at commonly owned facilities for determination of applicability and compliance with waste management plan requirements.
- Phosphorus-based waste application depending on soil test values.

Revised LMFA requirements as a result of 1999 amendments:

- Expansion of the public informational requirement to include not only lagoons but also other facilities with more than 1,000 animal units.
- Inclusion of all types of waste storage structures and transportation equipment in the waste release reporting requirement.
- Waste management plans required for all operations with more than 1,000 animal units; state review and approval required for all operations with more than 5,000 animal units.
- Removal of the non-farm residence designation for residential setback determinations.

The proposed regulations for implementing these new and revised LMFA requirements were released on July 25, 2000. Information in the following sections is based upon existing regulations.

4.0 Types of Permits

NPDES

Illinois is authorized to administer the federal NPDES permitting program. Since 1992, Illinois has had a general NPDES permit for CAFOs.

Owners or operators of animal waste facilities with previously permitted discharges (before 1992 and the development of the general permit) were required to submit a Notice of Intent (NOI) to seek coverage under the general NPDES permit. Likewise, new dischargers need to apply for coverage under the general permit (Illinois Draft NPDES General Permit, 1992).

Other

In accordance with the LMFA, Illinois law requires that all new or modified livestock waste lagoons be registered with the IDA.

5.0 Permit Coverage

Facilities that discharge only in the event of a 25-year, 24-hour storm event are not required to obtain a permit.

The general NPDES permit issued in 1992 by the state of Illinois provided coverage for all AFOs already operating with an individual NPDES permit and operations that were required to have an individual NPDES permit.

The LMFA was promulgated to control waste from livestock facilities with more than 300 animal units. Illinois has adopted the federal definition of animal units.

6.0 Permit Conditions

Approvals

Owners or operators of animal waste facilities with previously permitted discharges (before 1992 and the development of the general permit) were required to submit a Notice of Intent (NOI) to seek coverage under the general NPDES permit. Likewise, new dischargers need to apply for coverage under the general permit (Illinois Draft NPDES General Permit, 1992).

Currently, managers of livestock facilities must obtain a registration certificate from the IDA to build a livestock waste management facility designed to contain 300 or more animal units. IDA requires that all sites must be inspected by a registered professional engineer (Illinois EPA, 1996b).

Lagoon Design and Specifications

New facilities designed for more than 300 animal units, or facilities modified to exceed 300 animal units, that have not placed manure in lagoons are required to investigate the soil below the lagoon site under the supervision of a registered professional engineer. The facility operator must take steps (i.e., installing clay or synthetic liners) to protect any aquifer within 50 feet of the lagoon bottom.

Waste lagoon design standards (as described in 35 ILCS 506 Subpart B) must follow the design specifications of either the American Society of Agricultural Engineers or the Natural Resources Conservation Service. The IDA, however, may impose extra requirements when protection of ground water is a concern.

Liner requirements are determined based on the distance from the bottom of the waste lagoon to the ground water aquifer. If the distance between the aquifer and the lagoon is less than 20 feet, a liner and ground water monitoring are required. A liner, but not monitoring, is required for lagoons with bottoms 20 to 50 feet from a ground water aquifer. There are no liner or monitoring requirements for lagoons with a 50-foot distance between ground water and the lagoon bottom.

A minimum of 1 foot of freeboard is required for facilities with less than 300 animal units. Animal feeding operations with 300 or more animal units must maintain 2 feet of freeboard.

The minimum berm width for lagoons is 8 feet, and the slope may not be steeper than 3:1.

Lagoon capacity must be in accordance with subsection 5.4.1.1, ASAE EP403.2, ASAE Standards 1993, pp. 543-545. Livestock waste volume must be sufficient to store the waste

generated by the facility for at least 270 days. Runoff and wash-down volumes are to be calculated based on a 6-inch rainfall covering the lagoon surface and any other areas such as open lots, roofs, or other surfaces where collected precipitation is directed to the lagoon in addition to any wash-down water used by the operation.

Lagoons must have a liquid level board or staff gauge.

New or modified lagoons must add water up to at least 60 percent of design volume before any waste is added.

Modifications to the requirements can be made to meet site-specific objectives if they can be demonstrated to be as effective as the established standards. The state authority must approve them.

Discharge Rules

No discharges are allowed except those caused by catastrophic storm. Livestock waste handling facilities must be maintained to contain the precipitation and runoff from a 25-year, 24-hour storm.

Waste Management Plans

Waste management plans must be developed based on proper application of livestock waste at rates not to exceed the agronomic nitrogen demand of the crops to be grown when averaged over a 5-year period. Plans are required for all facilities with 1,000 to 7,000 animal units. Operations with fewer than 1,000 animal units do not need a waste management plan. These plans must be maintained on file at the livestock management facility and must be available for inspection by IDA personnel. AFOs with more than 7,000 animal units must prepare a waste management plan approved by the IDA before operating for new facilities and within 60 days for existing facilities. All waste disposal records must be maintained for 3 years.

The waste management plan must contain the following items:

- An estimate of the annual volume of waste to be disposed of.
- The number of acres available for disposal.
- An estimate of the nutrient value of the waste.
- An indication that livestock waste will be applied agronomically based on nitrogen demands of the crops to be grown.
- An indication that livestock waste applied within 1/4 mile of any residence will be incorporated on the day of application.
- A provision that waste will not be applied within 200 feet of surface water unless the water is upgrade and that waste will not be applied within 150 feet of potable water supply wells.
- A provision that prevents the application of waste within the 10-year floodplain unless injection or incorporation is used.
- A provision that allows waste disposal on frozen or snow-covered ground only if land slopes are 5 percent or less or adequate erosion control practices are in place.
- Methods for animal disposal.

Separation Distances

AFOs with 50 to 999 animal units must be 1/4 mile (1,320 feet) from the nearest occupied non-farm residence and 1/2 mile (2,640 feet) from populated areas. CAFOs with 1,000 to 7,000 animal units must be an additional 220 feet beyond the 1/4 mile limit from residences for every 1,000 animal units above 1,000. Also, CAFOs with 1,000 to 7,000 animal units must be an additional 440 feet beyond the 1/2-mile limit from populated areas for every 1,000 animal units above 1,000 (IDA, 1997).

Land Application Requirements

Waste should be applied at agronomic rates based on the nitrogen needs of crops, and any land application of wastes requires that wastes be assimilated into the land to prevent discharges to waters of the state (Illinois Draft NPDES General Permit, 1992).

Other Permit Conditions

A livestock waste handling facility with 300 to 1,000 or more animal units must be operated under the supervision of a certified livestock manager. Certification can be obtained by attending a training session sponsored by the IDA or by successfully completing an exam. AFOs with more than 1,000 animal units must be operated under the supervision of a certified livestock manager who has attended a training session **and** passed a written competency examination. Also, owners of new or modified lagoons registered under the requirements of the CWA must provide evidence of financial responsibility for lagoon closures.

7.0 Enforcement Information

General Enforcement Information

If a facility fails to register its waste lagoons, the IDA may issue a notice that allows the facility 10 working days after receipt of the notice to register and certify the lagoon. If the owner or operator does not comply with the notice, the IDA can issue a cease and desist order.

Other enforcement actions include (IDA, 1997):

- If the lagoon is not constructed in accordance with the rules, fines of not more than \$5,000 may be levied.
- Failure to prepare, maintain, and implement a waste management plan draws a warning letter from the IDA for the first violation. If the problem has not been corrected after 30 days, the facility is fined up to \$500 and has to enter into an agreement with IDA to prepare, maintain, and implement a plan. Operational cease and desist orders follow if the owner or operator does not comply or refuses to enter into agreement. Similar actions are taken when livestock managers violate certification requirements.
- If an operation violates the setback rules, the IDA may issue a cease and desist order to prevent livestock from entering into the livestock management facility and prohibit use of the waste management facility, or IDA may issue a cease and desist order. The cease and desist orders can be canceled when the facility comes into compliance.

General Inspection Information

From 1985 to 1994 IEPA conducted an average of 222 inspections per year and found that 67 percent of livestock facilities inspected required corrective actions. In 1994, citizen complaints prompted 106 of 228 inspections. Also, 129 inspections were recorded as first-time visits (IEPA, 1996a). Most complaints were about odor problems. In 1996 IEPA conducted 285 inspections.

As a condition of the current livestock waste lagoon registration process, IDA may conduct periodic site inspections to ensure compliance. IDA is authorized to conduct inspections any time during the development process and in response to complaints. All new or modified waste lagoons must be inspected by the operator under the direction of a licensed professional engineer.

8.0 Voluntary Programs

The only incentives offered to CAFO operators are the incentives offered through the federal EQIP program.

9.0 Additional State-Specific Information

Cooperative Extension Service

Information about the University of Illinois Cooperative Extension can be found at www.extension.uiuc.edu/welcome.html.

Comprehensive Nutrient Management Plan (CNMP) Certification

Illinois does not have a CNMP certification program, but all livestock waste handling facilities serving 300 or more animal units must be operated by a “Certified Livestock Manager.” Managers of facilities with 300 to 999 animal units can become certified: by attending an approved training course or by passing a proficiency exam. Managers of facilities with 1,000 or more animal units must attend the training course and pass the exam.

Other Information

Illinois is one of the few states that requires registered operators of CAFOs to provide proof of financial responsibility (through insurance, surety bond, or other form of guarantee) for the closure of lagoons and proper disposal of their contents if the facility were to stop operations (IDA, 1997).

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Indiana's CAFO Program

1.0 Background

Based on information provided by Indiana's Department of Environmental Management, there are more than 3000 CFOs and about 400 CAFOs in Indiana. Indiana defines a facility as a CFO if:

- Animals are confined for 45 days or more a year.
- The confinement area is covered with less than 50 percent vegetation.
- Animal numbers exceed at least 300 cattle, 600 swine or sheep, or 30,000 fowl (IDEM, 2001).

All CFOs must obtain and maintain IDEM approval. Any new construction must first be approved by IDEM (IDEM, 2001).

Indiana has developed a workgroup, consisting of members from government, agriculture, environmental groups, and citizen groups, to develop state regulations for confined feeding operations. The readobted November 14, 2001 rules may be viewed at <http://www.state.in.us/idem/land/cfo/cforule.pdf>.

2.0 Lead Regulatory Agency

The Indiana Department of Environmental Management (IDEM) is responsible for the regulation of confined feeding operation (CFOs). More information about IDEM can be found at www.state.in.us/idem/.

3.0 State Regulations Regarding AFOs/CAFOs

The Indiana Confined Feeding Control Law, Indiana Code 13-18-10, requires CAFOs to receive approval from IDEM of plans for waste treatment control facilities.

The new Indiana Confined Feeding Regulation Program (327 Indiana Administrative Code Article 16) was just recently adopted by the state. The program addresses application requirements, public notification and comment periods; manure management plan requirements; and performance and operating requirements, including maintenance, general requirements for new manure storage structures, spill response plans, land application of manure, inspection procedures, enforcement, and the closure of manure storage structures (IDEM, 2001).

CFOs must also obey IC 15-2.1-16-20 for dead animal disposal and 327 IAC 2-6.1 regarding the spill rule.

4.0 Types of Permits

NPDES

Indiana is authorized to issue NPDES permits to CAFOs, but has elected not to issue any permits under the NPDES program. The need for such a permit is based on an on-site inspection that

determines whether a permit is required based on (1) the number of animals, per category, housed at a facility; (2) whether pollutants from the facility are discharged into the waters of the state through a man-made ditch or flushing system; or (3) whether pollutants that originated outside the facility but pass over, across, or through it are discharged directly into the waters of the state. Otherwise, the disposal of wastes generated at such a facility is regulated as a solid waste under the Confined Feeding Program administered by the IDEM Office of Solid and Hazardous Waste (OSHW) Land Use Branch.

Other

There are no state permits, but anyone proposing to construct or expand a confined feeding operation must first apply for and obtain approval from IDEM prior to construction. Approval is also required for existing operations that have never been approved. In addition to the application form, the applicant must submit design and operation plans for the manure treatment and control facilities, a manure management plan, and the application fee. Proposed construction on undeveloped land also requires that the applicant notify the persons who own adjoining properties, the occupants of the adjoining land, and county executives.

5.0 Permit Coverage

Approval by IDEM is required for all CFOs. Existing CFOs that have not yet received approval and all new CFOs must send two copies of the following to IDEM:

- Completed application form
- Plot map
- Waste management system drawing
- Data from at least two test holes for soil and seasonal high water table information that are below the base of the proposed liquid manure storage structures
- Manure management plan
- Certification of any new earthen liquid manure storage structures by a registered Indiana engineer.
- List of potentially affected parties
- An affidavit stating that the owner/operator will provide the initial notice to adjoining landowners.
- Fee of \$100 (IDEM, 2001).

IDEM will review the information for compliance with all applicable rules and laws. Renewal of an approval is required every five years (IDEM, 2001).

6.0 Permit Conditions

Approvals

Upon receipt of the application, IDEM will notify the county board of commissioners, mayor, or town council president of any county, city, or town that is affected by the application. IDEM has 90 days to issue a decision regarding a confined feeding operation application. After the decision is made, IDEM will notify the applicant and potentially affected parties of the decision. Potentially affected parties have 18 days to appeal the decision. If approved, construction of the confined feeding operation must begin no later than 2 years and be completed no later than 4 years after the approval has been issued or after all appeals have been settled.

Approval is good for up to five years. A renewal application must be submitted to IDEM by the owner/operator before the expiration of the current approval.

If the owner /operator has decided to completely close the CFO and wants to be removed from the CFO approval program, the department must be notified that all livestock animals are removed from the site and the confined feeding operation has closed all manure storage structures in accordance with the applicable regulations. Once it is confirmed that all requirements have been met, the department will send the owner/operator a letter of confirmation (IAC 16-12)

Lagoon Design and Specifications

Standards are in place for waste structure design. All new manure storage structures must be designed with a storage capacity of at least 180 days. Facilities constructed before July 1, 1993, must provide a minimum 90-day storage. Structures constructed after July 1, 1993, and before the effective date of 327 IAC 16-8, must have a minimum 120-day holding capacity (Jones and Sutton, 1996). A freeboard of 24 inches is required. All lagoons must be capable of managing the runoff from a 25-year, 24-hour storm (IDEM, 2001). If determined necessary, monitoring systems, liners, higher compaction, innovative technologies, or other protective measures may be required.

Discharge Rules

No information was found in publicly available sources.

Waste Management Plans

According to Indiana Code 13-18-10-2.3, operations have to resubmit manure management plans every 5 years for the letter of approval to remain valid. A valid manure management plan must include procedures for soil testing, procedures for manure testing, and maps of manure application areas.

The owner/operator of confined feeding operations who plans to close a manure storage structure must continue to maintain the structure in accordance with the requirements of operation until the manure is removed. The manure must either be applied to the land in accordance with the land application requirements or be managed in an alternative manner compatible with state and federal laws. Associated structures must be removed. A manure storage structure is deemed closed when the environmental threat has been removed. The owner/operator should then submit a certification to the department that all requirements for the closure of a manure storage structure have been met. If deemed necessary to protect human health or the environment, the department may require additional closure requirements to be satisfied (327 IAC 16-11).

Separation Distances

Waste management systems must be located at a minimum distance of:

- 1,000 feet from a public water supply well or public water supply surface intake structure.
- 300 feet from surface waters of the state; drainage inlets; sinkholes; and off-site water wells
 - If a solid manure storage structure is designed to prevent storm water from entering the structure, this distance of 300 feet can be reduced to 100 feet.
- 100 feet from on-site water wells; property lines; and public roads

A reduced setback may be obtained if it is demonstrated that a different compliance approach meets the performance standards set forth in 327 IAC 16-3-1. A greater setback distance may be required if deemed necessary to protect human health or the environment.

Manure application setbacks for specific methods, locations, and gradients are located at 327 IAC 16-10-4.

Land Application Requirements

Manure from CFOs must be applied in accordance with Indiana's CFO rules so it does not enter or threaten to enter the state's waters. Manure should be used as a nutrient source and not as a waste product. CFO owner/operators must prevent runoff and spills associated with land application of manure. Newly approved CFOs may not apply manure to frozen or snow-covered ground. Liquid or solid manure must not be applied to frozen or snow-covered ground without residue protection or crop cover with slopes in excess of 2 percent. Manure can not be applied to saturated soil. A minimum number of acres for manure application must be maintained and documented according to agronomic rates based on nitrogen determined by a laboratory soil and manure test; or application rates can not exceed 150 lbs of potentially available nitrogen per acre per year. Manure application setbacks for specific methods, types, locations, and gradients are located at 327 IAC 16-10-4 (IDEM, 2001).

7.0 Enforcement Information

Confined feeding operations that allow manure or waste to be discharged into the state's waters or across property boundaries may be subject to an IDEM enforcement action (IDEM, 2001). If the violation is corrected immediately or within a reasonable time frame as specified in a written notification of the violation by a department representative, no enforcement action may be taken. IDEM may initiate an investigation upon receiving information regarding an alleged violation. If an investigation discloses a possible violation, the department will notify the alleged violator in writing that a possible violation may exist and offer the alleged violator an opportunity to enter into an agreed order to correct the violation, and if appropriate, pay a civil penalty. If the alleged violation is not corrected, the department may assess a civil penalty and issue a written notice including an order requiring that the respondent take specific action to correct the violation. The respondent has 20 days to file a written request for a review of the order by the Office of Environmental Adjudication. If an alleged violator who has requested a review of an order agrees to resolve the controversy concerning the order in a manner satisfactory to IDEM before a final order is issued by the Office of Environmental Adjudication, the department may approve

an agreed order based on the agreement. A final order is subject to judicial review (IC 13-30-3).

8.0 Voluntary Programs

IDEM is authorized to take the lead in the development of technical and compliance assistance programs for CAFO operators. The programs may be administered by the Department, a college or university, or a contractor.

IDEM created the Compliance and Technical Assistance Program (CTAP) to help the regulated community to achieve compliance and to encourage cooperation among IDEM, businesses, and the community.

9.0 Additional State-Specific Information

Cooperative Extension Service

Information about the Purdue University Cooperative Extension Service and the Purdue University National Extension Water Quality Database can be found at http://hermes.ecn.purdue.edu:8001/http_dir/acad/agr/extn/extn.html and <http://hermes.ecn.purdue.edu:8001/server/water/water.html>, respectively.

Comprehensive Nutrient Management Plan (CNMP) Certification

No CNMP certification programs are in place in Indiana. Draft rules proposed in May 2000 do not contain a certification provision.

Other Information

The Water Pollution Control Board plays a role in protecting the environment from CAFO related pollution. IDEM-Soil Conservation Service (SCS) assists the CAFO program with reviewing the technical requirements for CAFOs and by responding to complaints. The county board of health also may work cooperatively with the CAFO program on complaint response.

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Michigan's CAFO Program

1.0 Background

Michigan estimates it has more than 500 AFOs with 300 to 1,000 AUs and approximately 250 CAFOs with greater than 1,000 AUs (Harding, 2000)

Michigan is authorized to issue NPDES permits to CAFOs; however, the state has elected not to issue permits to these facilities. The state relies on voluntary Generally Accepted Agricultural and Management Practices (GAAMPs) guidance issued by the Michigan Commission of Agriculture to protect surface water quality.

2.0 Lead Regulatory Agency

The Michigan Department of Environmental Quality is the lead regulatory agency for CAFOs. Information about the Department can be found at www.deq.state.mi.us/.

3.0 State Regulations Regarding AFOs/CAFOs

Michigan's Right to Farm Act outlines guidelines for farm operations known as Generally Accepted Agriculture Management Practices (GAAMPs). These guidelines, which are set by the Michigan Agriculture Commission, are reviewed annually and revised if necessary.

In 1999, the Michigan legislature enacted P.A. 261, which amended the Michigan Right to Farm Act. P.A. 261 requires the establishment of Generally Accepted Agricultural and Management Practices for Site Selection and Odor Control for New and Expanding Livestock Facilities. These GAAMPs are written to fulfill that purpose and to provide uniform, statewide standards and acceptable management practices based on sound science. A farm or farm operation that conforms to these and other applicable GAAMPs adopted under the Michigan Right to Farm Act according to the Michigan Right to Farm Law (Act 93 of 1981, as amended), must not be found to be a public or private nuisance. The GAAMP for Site Selection and Odor Control for New and Expanding Livestock Facilities was adopted by the Michigan Commission of Agriculture in June 2000.

A GAAMP for Manure Management and Utilization was adopted by the Commission in November 1999. It contains recommended manure management plan content and management practices.

4.0 Types of Permits

NPDES

Michigan is authorized to administer the NPDES program, but has elected not to issue permits to CAFO facilities.

5.0 Permit Coverage

Not applicable.

6.0 Permit Conditions

Michigan does not issue permits, but has elected to issue voluntary guidelines for operations to follow.

The Michigan Department of Agriculture (MDA) has developed GAAMPs as a mechanism to protect the environment. GAAMPs recommend following guidelines from both the USDA's Natural Resources Conservation Service (NRCS) Field Office Technical Guide (FOTG) and the Midwest Plan Service Livestock Waste Facilities Handbook (Michigan Agriculture Commission, 1999) in developing and operating animal feedlots. GAAMPs do not duplicate the information found in these documents on generally accepted management practices for livestock operations but focus on providing more in-depth information on manure management practices. Farms or farm operations conforming to GAAMPs are protected from being found to be a public or private nuisance.

Manure Management System Plan

The November 1999 GAAMPs for Manure Management and Utilization recommend the adoption of a manure management system plan to manage (1) the utilization of manure nutrients and (2) the collection, storage, transportation, and land application of manure; any wastewater, runoff, or leachates from stored feed; and manure odor. The plan should include the frequent removal of manure (daily or every few days) from animal areas, followed by storage or stacking and land application of the wastes at agronomic rates. Manure tanks should be covered to reduce the escape of odors if it is technically and economically feasible. Other recommended practices to reduce the potential for nuisance complaints about odor are timing land application to take advantage of wind direction and weather conditions, using natural barriers and windbreaks to filter and dissipate odors, and incorporating manure into the soil soon after it is applied (Michigan Commission of Agriculture, 1999).

Lagoon Design and Specifications

Lagoons should be designed according to NRCS-FOTG specifications and guidelines. Lagoons should be able to contain normally occurring direct precipitation, resulting runoff, manure accumulations projected according to the manure management system plan, and the rainfall and runoff from the average 25-year, 24-hour storm for the area. Liners should meet specifications and guidelines in the NRCS-FOTG. Liners may be composed of natural soil, bentonite, or high swelling clays; compacted earthen liners; or flexible membranes (Michigan Commission of Agriculture 1999).

Discharge Rules

No information was found in publicly available sources.

Separation Distances

Livestock producers should site their operations where they least impact their neighbors. New outside lot facilities should not be in close proximity to or located uphill along a confining valley leading to residences and other odor-sensitive land uses. Similarly, new residences or sensitive land uses should not be in close proximity to existing lot systems. However, no quantitative setback distances are identified (Michigan Commission of Agriculture, 1999).

Land Application Requirements

Waste application rates should depend on the ability of the soil to store and accept the water and the uptake needs of the crops (Michigan Commission of Agriculture, 1999). Land application should occur during periods of maximum crop nutrient uptake. If possible, manure should not be applied during autumn to reduce the potential for leaching to soils. Application to frozen or snow-covered soils also should be avoided. GAAMPs recommend directing lot runoff through a structure for settling solids in order to reduce odor during storage and land application. Manure should not be applied to soils within 150 feet of surface waters or to areas with a high potential for flooding (Michigan Commission of Agriculture, 1999).

Infiltration Areas

A structure for settling solids and an infiltration area or vegetative filter may be used as an alternative to lagoons for dealing with lot runoff. The infiltration area should be vegetated with a long, grassed, slightly sloping channel or a broad, flat, level or almost level area enclosed by berm or a dike (Michigan Commission of Agriculture, 1999).

7.0 Enforcement Information

No information was found in publicly available sources.

8.0 Voluntary Programs

MDA is the lead agency for voluntary programs.

Michigan's Generally Accepted Agriculture Management Practices (GAAMPs) establish guidance for siting animal feeding operations, designing manure and wastewater disposal systems, and applying manure to agriculture lands.

Michigan is implementing the Michigan Agricultural Environmental Assurance Program (MAEAP). This is a voluntary, incentive-based program for agricultural producers to minimize agricultural impact on the environment through the use of CNMPs. MAEAP is a partnership among government, producer and commodity groups, and environmental interest organizations (Harding, 2000).

9.0 Additional State-Specific Information

Cooperative Extension Service

Information about the Michigan State University Extension can be found at www.msue.msu.edu/msue/.

Comprehensive Nutrient Management Plan (CNMP) Certification

There is no CNMP preparer or operator certification program in Michigan.

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Minnesota's CAFO Program

1.0 Background

Based on information provided to EPA by USDA, there are 1,357 AFOs with 300 to 1,000 animal units and 485 AFOs with more than 1,000 animal units in Minnesota. These are primarily in the swine sector (USDA, 1999; USDA, 2000).

2.0 Lead Regulatory Agency

The feedlot program is administered by the MPCA Water Quality Division. The MPCA feedlot unit issues permits to livestock operations throughout Minnesota. Counties may assume responsibility to issue certain permits for feedlots up to 1,000 AUs. MPCA issues all permits over 1,000 AUs and all permits issued in non-delegated counties.

3.0 State Regulations Regarding AFOs/CAFOs

Minnesota Rules Chapter 7020 regulates animal feedlots and the collection, transportation, storage, processing, and disposal of livestock manure for the prevention and abatement of environmental pollution (MPCA, 1999).

Minnesota revised its CAFO regulations in August, 2000 (Chapter 7020). An overview of the changes to Minnesota Rules Chapter 7020 is located at www.pca.state.mn.us/hot/fl-rulesummary.pdf, the MPCA feedlot rule. Minnesota imposes feedlot and manure storage area registration requirements, and imposes construction/expansion and operation and management requirements on different size feedlots. Since January 1, 2002, registration data for animal feedlots and manure storage areas must be maintained by the Minnesota Pollution Control Agency and all delegated counties. Owners of facilities capable of holding 50 or more animal units (10 or more if on shoreland) or the manure produced by 50 or more animal units are required to register unless the facility is located on county fairgrounds.

Feedlots with under 300 animal units that have an open-lot pollution hazard (i.e., do not meet runoff standards) may either obtain one of the permits described below or enter into the state's 2005/2010 open lot agreement (which requires installation of interim measures to address the hazard by 2005 and final measures by 2010).

4.0 Types of Permits

NPDES

Minnesota administers the federal NPDES program. As such, MPCA issues individual NPDES permits to confined feeding operations as defined by federal regulation.

Other

State feedlot permits are issued in several forms:

- Feedlots with 1,000 or more animal units or manure storage areas must have, for construction or expansion, an NPDES permit or a State Disposal System Permit (SDS). Permit applications must include an air emissions plan, an emergency response plan, and, for

construction or expansion involving a liquid manure storage facility, design specifications and plans signed by a registered professional engineer. An Environmental Assessment Worksheet (EAW) is required for construction of a new feedlot with 1,000 animal units or more, expansion of an existing feedlot by 1,000 animal units or more, expansion of an existing feedlot by more than 500 animal units in a sensitive area. An existing feedlot or manure storage area may not expand to the capacity of 1,000 animal units or more or the manure produced by 1,000 animal units. An existing feedlot or manure storage area in a 100-year flood plain may not expand.

- Feedlots with 1,000 or more animal units or manure storage areas, for operation and management, must have an NPDES or SDS permit. Manure stockpiled for more than one year (or use of the same site year after year) is subject to NPDES or SDS permitting.
- Feedlots with 300-999 animal units require a construction short form permit for construction activities related to liquid manure storage areas and new or expanding feedlots. An EAW is required for construction of a feedlot of more than 500 animal units in a sensitive area (e.g., shoreland, flood plain, wild and scenic river district, etc.) or for expansion of an existing feedlot by more than 500 animal units in a sensitive area. The state has standards for constructing liquid manure storage structures. Existing feedlots or manure storage areas are subject to expansion limits.
- Feedlots with 300-999 animal units must obtain, for operation and management, an interim permit (as necessary to address pollution hazard or high risk condition), an NPDES permit (if defined as a CAFO), or an SDS permit if they do not meet the state discharge standard or are considered a pollution hazard. Manure stockpiled for more than one year (or use of the same site year after year) is subject to NPDES or SDS permitting.
- Feedlots with under 300 animal units do not require a state feedlot permit for construction, but must comply with technical standards for location, design, construction, and operation. An SDS permit is required where proposed construction differs from technical standards.
- Feedlots with under 300 animal units must obtain, for operation and management, interim permit (for hazards not subject to corrective measures agreement) that requires hazards be corrected within 24 months, an NPDES permit (if designated as a CAFO), or an SDS permit (if construction differs from technical standards).

5.0 Permit Coverage

Landowners with more than 10 AUs are required to apply for a state feedlot permit whenever one of these following conditions occurs (MPCA, 2000b):

- A new feedlot or manure storage area is constructed (i.e., construction approval is required).
- A feedlot is expanded or modified.
- A change in ownership occurs.
- An existing feedlot is restocked after being abandoned for more than 5 years.
- Inspection by MPCA staff determines the feedlot is a potential pollution hazard.
- The feedlot is near a shoreline (less than 300 feet from a river or less than 1,000 feet from a lake).

If outside shoreland, a permit is required for landowners with 50 AUs or greater.

MPCA defines AUs as the average weight of the animal divided by 1,000 pounds (Chapter 7020.0300 of Minnesota Rules). In Minnesota, one mature dairy cow equals 1.4 AUs, one horse and one slaughter steer equal one AU each, and one chicken is 0.01 AU (MPCA, 2000b).

NPDES permits are required for operations larger than 1,000 AUs that have the potential to discharge to state waters. However, if any livestock, regardless of the number, cause a pollution hazard to state waters, a permit application must be submitted (MPCA, 2000b).

6.0 Permit Conditions

Approvals

An Environmental Assessment Worksheet (EAW) is required for new construction of, or additions to, livestock facilities that will house 2,000 AUs or more in a total confinement system and/or 1,000 AUs in a partial confinement system. An EAW can also be required of any feedlot by petition of 25 people. If an EAW is required, no permits can be issued until the process is completed (MPCA, 2000b).

To complete a state permit application and seek approval for operating an animal waste management system, an applicant must have the following:

- A manure management plan that accounts for all manure produced by the facility.
- A signed agreement by neighbors when a manure management plan involves neighboring property.
- A soil boring record for underground earthen manure storage sites and seepage limits of less than 1/16 inch per day.
- Plans prepared by a U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) qualified engineer for all earthen storage basins or any manure storage facility with a 500,000-gallon capacity or more.
- For any new or expanding feedlot with the capacity of 500 AUs or greater, landowners and residents require notification of the proposed facility within 10 days of submitting the permit application. The notification must be made in person, by first class mail, or by general circulation in the local newspaper.

Lagoon Design and Specifications

Standards for constructing liquid manure storage for facilities with 1,000 or more animal units include 9-month storage capacity, seepage limits for liner types, plans and specifications designed by an engineer, notifications, reports, location restrictions, and separation to bedrock restrictions. With the exception of the 9-month storage capacity requirement, these same provisions apply to facilities with 300-999 animal units.

By October 1, 2001, unpermitted or non-certified liquid manure storage areas at facilities with 1,000 or more animal units must be closed, reconstructed pursuant to current standards, verified as in compliance with original standards, certified per NRCS (if plans prepared by NRCS), demonstrate compliance with seepage test, and conduct soil investigation to demonstrate compliance with construction standards (the compliance date is October 1, 2005, for facilities with 300-999 animal units).

Discharge Rules

Operations with 1,000 or more animal units or more must not discharge manure or process wastewater to waters of the state. Stockpile runoff cannot discharge to waters of the state. A feedlot is also considered a potential pollution hazard if the manure storage facility will cause a significant runoff of manure to surface waters during a 25-year, 24-hour rainstorm or uncontrolled seepage of pollutants into ground water (MPCA, 2000b).

Waste Management Plans

Manure management plans must be developed for operations with 1,000 or more animal units. Manure management plans must also be submitted by operations with 300-999 animal units when submitting their permit applications. Such plans also are required after January 1, 2005, where manure is not applied by a commercial animal waste technician or a certified private manure applicator.

Separation Distances

New feedlots cannot be located in shoreland (within 300 feet of a river or stream or within 1,000 feet of lake, pond or flowage), in a 100-year flood plain, within 300 feet of a sinkhole, within 100 feet of a private well or within 1,000 feet of a community water supply well (with limited exceptions). Neighbors within 5,000 feet must be notified within 10 days of submitting a permit application.

Additional protective measures are required for application of manure in special protection areas (land within 300 feet of lakes streams, intermittent streams excluding grassed waterways public waters wetlands and drainage ditches without protective berms). Winter application is prohibited in these areas. Other requirements vary depending on whether there is a permanent vegetated buffer along the water or waterway (i.e., where permanent vegetated buffer extends 100 feet from lakes and streams and 50 feet from other waters, and no manure is applied within the buffer, no other land application restrictions in these special protection areas.). Where there is no vegetated buffer, the producer must maintain a 25-foot setback, incorporate the manure within 24 hours, and apply in a way that does not result in long-term soil phosphorus accumulation.

Land Application Requirements

Manure application must be limited so that plant available nitrogen from all sources does not exceed crop nitrogen needs for non-legumes and expected nitrogen removal for legumes. Manure from storage areas holding manure from more than 1,000 animal units must be tested for nitrogen and phosphorus annually for the first three years and once every four years thereafter. Soil phosphorus testing is required once every four years for fields receiving manure. Records must be kept of manure nutrient tests, filed locations, rates and dates of applications, available nutrients from manure and fertilizer, and soil tests. If soil tests indicate a feedlot is above state set thresholds for phosphorus, a phosphorus management strategy must be submitted to the MPCA if manure will be applied onto that site. Minnesota requires manure management practice requirements to be followed where manure is to be applied within 300 feet of waters. These rules include prohibiting application to frozen or snow-covered ground, prohibited long term soil phosphorus build-up, vegetative buffers, setbacks, and immediate incorporation of manure. (Studders, 2000).

7.0 Enforcement Information

From 1990 to 1997, MPCA issued 694 permits to feedlots (MPCA, 2000a). During the same period, MPCA initiated 56 enforcement actions (MPCA, 1999).

Inspection Programs

Agena (1994) reported that although inspections are infrequent and primarily complaint driven, some facilities must submit annual manure disposal records to the state. EPA (1998) reports that there are 1,000 inspections a year. Site appraisals are also required before development.

USDA-NRCS conservation officers sometimes are requested to assist in conducting inspections at feedlots.

8.0 Voluntary Programs

The Minnesota Department of Agriculture (MDA) administers a low interest loan program in coordination with the Soil and Water Resources Board and the County Soil and Water Conservation Districts. The Agricultural Best Management Practices Loan Program offers low interest loans to help implement water quality improvement practices such as animal waste control structures (MPCA, 2000b).

The Soil and Water Resources Board, with help from the County Soil and Water Conservation Districts, manages the cost share assistance program. Cost share funds can cover up to 75 percent of the expense for a feedlot project. To be eligible for cost share assistance, projects must receive approval from the Board before construction begins (MPCA, 2000b).

9.0 Additional State-Specific Information

Cooperative Extension Service

Information regarding the University of Minnesota Extension Service can be obtained at www.extension.umn.edu/.

Comprehensive Nutrient Management Plan (CNMP) Certification

Minnesota does not have a CNMP preparer certification program. Animal feedlots with more than 1,000 AUs must prepare and submit a manure management plan to the Commissioner of the Pollution Control Agency or a delegated county (MPCA, 2000c).

The Soil and Water Conservation District (SWCD), USDA-NRCS, or the Minnesota Extension Service (MES) office in each county can assist with manure management plans. The organizations often run educational seminars and farm tours to provide information about manure management. The county SWCD, NRCS, or MES office has access to the Manure Application Planner computer program used to calculate the amounts of manure to apply. In addition, the MDA Internet site has a list of consultants, laboratories, and contractors available to help producers develop manure management plans (MPCA, 2000c).

MDA's Agriculture Development Division has a Feedlot and Manure Management Advisory Committee (FMMAC) that has produced several manuals to assist livestock owners with manure management (MDA, 2000).

Case Studies/Innovative Programs

Currently, there are no odor control rules, but a task force convened by the Feedlot and Manure Management Advisory Committee made recommendations for the development of an odor rating guide to be used by counties when regulating livestock confinement areas.

In early 1997, MPCA gave public notice of its intent to develop and issue general NPDES permits for feedlots operating with more than 1,000 AUs. On the recommendation of the Feedlot Manure Management Advisory Committee, MPCA withdrew the general permit from public comment after initial public comment indicated that it would be contested. Currently, MPCA is revising the general permit language to address issues raised by the public and may place the general NPDES Permit on public notice again (MPCA, 1997).

MPCA established a Feedlot Phone Helpline to help feedlot owners who have questions about their operations. The toll free number is 1-877-333-3508.

Minnesota's Environmental Quality Control Board is conducting a multimillion dollar 3-year study of the impact of the state's livestock industry, which is expected to be completed in 2001. A statewide inventory of the location of the state's feedlots, the species, and the numbers of animals being raised will be included. For specific information regarding the study, contact Susan Schmidt at (651)296-2888 or animal.ag@mnplan.state.mn.us.

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Ohio's CAFO Program

1.0 Background

Based upon information provided to EPA by USDA, there are 532 AFOs with 300 to 1,000 animal units and 212 AFOs with more than 1,000 animal units in Ohio (USDA, 1999; USDA, 2000). Ohio has 130 facilities with more than 1,000 AU that have received installation permits and/or livestock waste management plans approval from Ohio EPA (Jones, Speck, Daily, 2000).

2.0 Lead Regulatory Agency

Senate Bill 141 transfers the authority to issue NPDES permits for the discharge of manure from point sources into waters of the state and for storm water resulting from an animal feeding facility (AFF) from the Director of Environmental Protection to the Director of Agriculture. The authority to issue these permits depends upon the approval of the Director of Agriculture's permit plan by the U.S. EPA. Authority to issue permits to construct or modify concentrated animal feeding facilities (CAFF) also was transferred to the Director of Agriculture (OLSC, 2002). The Division of Soil and Water Conservation, Ohio Department of Natural Resources, addresses pollution problems from operations with fewer than 1,000 animal units, which are not required to obtain permits (Hutchinson, 1996).

3.0 State Regulations Regarding AFOs/CAFOs

Ohio Revised Code (OR) 6111 prohibits the controlled discharge of waste directly into state waters (Veenhuizen et al., 2000). Ohio Revised Code 307.204 and 505.226 require written notification of new or expanding CAFF to local county and township boards, and an agreement regarding the CAFF operations between the CAFF and the county, and CAFF and the township before a permit is issued. Senate Bill 141 transfers the authority to regulate NPDES discharges to the Ohio Department of Agriculture and requires all farms with 1,000 AUs be regulated by permit and utilize Best Management Practices and Comprehensive Nutrient Management Plans. The program also requires plans for insect and rodent control (Jones et al., 2000). Livestock facilities are affected by Ohio's Stream Litter Act (ORC 1531.29), which specifies that any person putting wastes into Ohio's waters may be guilty of a violation (Hutchinson, 1996).

4.0 Types of Permits

Three types of Ohio EPA approvals may apply to an animal operation in: an NPDES permit, an installation permit (formerly a permit-to-install), and a livestock waste management plan. An animal operation may need to have more than one permit or management plan (Hutchinson, 1996).

NPDES

Currently there are potentially two types of NPDES permits that a livestock operator would need: an NPDES wastewater permit and an NPDES storm water permit.

Senate Bill 141 prohibits a person, on and after the date on which the U.S. EPA approves the NPDES program submitted by the Director of Agriculture, from discharging manure from a point source into waters of the state, or from discharging storm water resulting from an AFF, without first obtaining a NPDES permit issued by the Director of Agriculture. Persons who have been

issued a NPDES permit by the Director of Environmental Protection for the discharge of manure or the discharge of storm water from an AFF prior to the date on which the U.S. EPA approves the NPDES program submitted by the Director of Agriculture may continue to operate under that permit until it expires or is modified or revoked (OLSC, 2002).

The Department of Agriculture is required to issue general NPDES permits when applicable instead of individual NPDES permits if these conditions are met:

- Any discharges authorized by a general permit will have only minimal cumulative adverse effects on the environment when the discharges are considered collectively and individually.
- The discharges are more appropriately authorized by a general permit than by an individual permit.
- Each category of point sources satisfies the criteria in all applicable rules.

Persons issued an NPDES permits by the agency must comply with the requirements in the Draft Rule for:

- Standard terms and conditions
- Effluent limitations

And these regulations:

- Applicable water quality standards adopted under Section 6111.041 of the Revised Code
- National standards of performance for new sources
- The antidegradation policy adopted under Section 611.12 of the Revised Code

An NPDES construction storm water permit is necessary if more than 5 acres of land will be cleared, graded, or excavated.

Other

Currently an NPDES wastewater permit issued by the Director of Ohio EPA authorizes a discharge to waters of the state and sets limits on the amount of pollutants allowed to be discharged. This permit is rarely used for animal waste in Ohio.

An NPDES construction storm water permit is necessary if more than 5 acres of land will be cleared, graded, or excavated.

An installation permit (also referred to as a permit-to-install or PTI) can be thought of as a construction permit. It is required for new, modified, renovated, or expanding livestock waste treatment/disposal systems that are designed to serve more than 1,000 animal units or have a controlled direct discharge to waters of the state. An installation permit also is required for construction of sanitary treatment facilities serving restrooms not associated with a private dwelling, for any size operation. If a facility falls under both categories, a single permit can be issued for the whole project. Plans must be approved by the Director of Ohio EPA before construction begins (Hutchinson, 1996).

The draft rules state that except for a CAFF that is operating under an installation permit or a

review compliance certificate, no person shall operate a CAFF without a Permit to Operate issued by the Department of Agriculture. An animal feeding facility that is required to obtain both a NPDES permit and a permit to operate must be issued a single permit to operate, incorporating the terms and conditions established by both permits. Persons wishing to construct or modify concentrated animal feeding facilities must obtain an installation permit (OLSC, 2002).

5.0 Permit Coverage

The following animal operations/facilities currently need NPDES wastewater permits from the Ohio EPA. Except for these two situations, an NPDES permit is not automatically required (Hutchinson, 1996):

- If the operation/facility meets all of the following conditions:
 - Animal feeding operation of 1,000 animal units or more
 - Facility is designed and operated to contain the volume of all process wastewater generated at the site and runoff from up to a 25-year, 24-hour storm event
 - There is a potential for a discharge (a discharge does not have to be a controlled, directed flow and could include wash water from a milk parlor, silo drainage, lagoon overflows or manure runoff from a feedlot)
- A livestock operation with a controlled direct discharge to waters of the state, regardless of the number of animal units. A controlled direct discharge is a man-made conveyance, such as a pipe, which carries wastewater

The draft rules, currently undergoing legal review and soon to be submitted as a final rules package to the Joint Committee on Agency Rule Review in March 2002 states the Ohio Department of Agriculture may designate any AFF as a concentrated animal feeding operation (CAFO) upon determining by a site-specific inspection that it is a significant contributor of pollution to the waters of the state and therefore require a NPDES permit. When designating a facility as a CAFO, these characteristics are considered:

- The size of the facility.
- Amount of manure reaching waters of the state.
- The location of the facility in relation to the waters of the state.
- The means of conveyance of manure into the water of the state.
- The slope, vegetation, rainfall, and other factors affecting the likelihood of a discharge.
- Other relevant factors.

Ohio's definition of a CAFO is the same as the federal definition (40 CFR 122.23) and will most likely remain unchanged by Senate Bill 141.

6.0 Permit Conditions

Approvals

Three types of approvals may currently be obtained in Ohio: the NPDES permit, the installation permit, and approval of the livestock waste management plan.

The owner of a livestock operation submits an installation permit application to the Ohio EPA for approval. Information needed to process an installation permit application includes

(Hutchinson, 1996):

- Basis of design/operation
- Scaled, detailed engineering drawings
- Site plan
- Hydrogeologic study, if earthen lagoons are used, to determine site suitability and lagoon design requirements

Three types of approvals may be required by the draft rules in Ohio for a CAFF: the NPDES permit approval for manure and storm water runoff, the Permit to Install, and the Permit to Operate.

In order to receive approval for a Permit to Install, a CAFF must provide written statements from the board of county commissioners of the county and the board of township trustees of the township in which the CAFF would be located, certifying that the applicant has provided the boards with the required written notification and an agreement between the boards and the applicant has been reached regarding needed improvements to the CAFF operation plans as established in Sections 307.204 and 505.226 of the Ohio Revised Code. A summary of the soils, hydrology, subsurface geology, and topography of the land area used for manure storage is also required. Designs and plans for the proposed construction of the CAFF, including the proposed location of the construction site and the design specifications, are required.

To receive an approval for a Permit to Operate, applicants must submit:

- Manure management plan that addresses nutrient budget, manure characterization, odor, distribution and utilization methods for manure, soil tests and methods for the land application of manure.
- Insect and rodent control plan
- Plan for the Disposal of Dead Livestock.
- Operating record
- Emergency response plan
- Biosecurity plan
- For CAFF with more than 10,000 AUs, written proof that the person responsible for the supervision of the management and handling of manure at the facility has Livestock Manager Certification.

NPDES permit applications must contain:

- All information required in rule 901:10 of the administrative code for NPDES permits
- Manure Management Plan
- Operating record
- Emergency Response Plan
- Purpose and Applicability of the individual NPDES permit

Lagoon Design and Specifications

The Draft Rules state earthen lagoons must be designed and their plans stamped by a professional engineer. Before construction begins, a subsurface geological exploration is required to determine conditions that may adversely affect groundwater quality. Lagoons should be outside of flood plains unless site restrictions require location within the flood plain. One foot of

freeboard is required for all earthen lagoons and the lagoon must be capable of containing the runoff from a 25-year, 24-hour storm. A minimum storage capacity of 180 days is required for all new earthen lagoons. A 120-day capacity and a 6-inch freeboard is required for all fabricated structures. A liner must be used if recommended by an engineering geologist or professional engineer. The minimum embankment top width must be a minimum of 8 feet for embankments 10 to 15 feet in height, 10 feet for embankments 15 to 20 feet in height, and 12 feet for embankments 20 to 25 feet in height. A minimum of 15 feet of soil is required above all aquifers. Additional protection is needed for waste storage facilities located: above aquifers that can yield 100 gallons per minute for a 24-hour period; located within 1,000 feet of a public water supply well field; located in a 100-year flood plain or karst area. A measuring post must be placed in the lagoon indicating:

- The required precharge depth prior to loading.
- The dewatering depth.
- The odor control volume depth.
- The maximum liquid depth.

Additional lagoon requirements including setbacks are provided in the draft rule under Permit to Install located at <<http://www.state.oh.us/agr/LivestockRegulation/PTI-page.htm>>

Discharge Rules

Discharges from animal feeding operations to surface water can occur only in the event of a 25-year, 24-hour storm event (or worse).

Waste Management Plans

A livestock waste management plan specifies how, when, and where animal waste will be handled. It is used for systems that store, stabilize, transport, or apply animal waste to land. A livestock waste management plan is used by Ohio EPA for controlling land-applied wastes in two situations: if animal operations or facilities have a controlled direct discharge to waters of the state or if an animal operation has 1,000 or more animal units. This plan also may be part of an installation permit if a permit is needed for new or expanded animal waste treatment, storage, or disposal facilities. Ohio EPA and local Soil and Water Conservation District (SWCD) office personnel can assist in completing the plan. The plan describes (Hutchinson, 1996):

- Systems to store, treat and transport manure
- Characteristics of the manure and/or wastewater
- Amount and topography of land available for application
- Methods and times of land application
- Crop rotations
- Condition and nutrient status of the soil

The livestock waste management plan provides a documented method of operation that will prevent land-applied waste from adversely affecting water quality. Information needed to process a waste management plan includes:

- Discussion of waste collection, treatment, and disposal
- Volume of waste produced (manure analysis results) and application rate calculations
- Site maps and soil descriptions (for land application), isolation distances

- Discussion of land application management
- Sample sales contract (if applicable)
- Manure and soil sampling schedule
- Recordkeeping and reporting requirements

Owners and operators of CAFOs who are operating in substantial compliance with an approved operation and management plan may use this as an affirmative defense in a private civil action for nuisances involving animal pollution (ORC 1511.021).

The Ohio Director of Agriculture's Draft Rules require a manure management plan be developed to minimize water pollution, protect waters of the state, and incorporate BMPs regarding the use of manure and for minimizing odor.

The manure management plan must specify the frequency of inspections to be conducted by the owner or operator of the manure storage facility. A total nutrient budget must be developed include:

- Summary of acres of land application sites.
- Estimated yields.
- Nutrient requirements for land application sites for both manure nutrients and commercial fertilizer nutrients.
- Methods of distribution and use of nutrients.

Soil and manure sampling and analysis will be required to allow the facility to plan nutrient utilization at agronomic rates. Fertility analysis for soil should include pH, phosphorus, potassium, calcium, magnesium, and cation exchange capacity. Manure must be analyzed at least once a year for total nitrogen, ammonium nitrogen, organic nitrogen, phosphorus, potassium, and per cent total solids. Sites receiving manure must be soil tested at a minimum of once every 3 years.

Best management practices (BMPs) must be utilized for land application of manure and to minimize odors. The manure management plan must identify which practices are used at the facility.

Separation Distances

Currently storage tanks must be at least 100 feet from wells, cisterns, and springs. Lagoons, feedlots, and stacked manure must be at least 200 feet away from wells, cisterns, and springs. Application of liquid manure has to be at least 200 feet from wells and occupied buildings, while manure solids must be applied at least 200 feet from wells and occupied buildings and 25 feet from ponds or streams (Jones and Sutton, 1996).

The draft rule states manure storage ponds and treatment lagoons should not be located:

- In a designated public groundwater source protection area.
- Within 300 feet of agricultural drainage wells and sink holes.
- Within 1,000 feet of public drinking water source wells.
- Within 1,500 feet of surface water intakes
- Within 300 feet of streams or 600 feet from streams if the CAFF has more than 10,000 animal units.

Additional information regarding the Draft Rules setbacks is provided at <www.state.oh.us/agr/LivestockRegulation/PTI-page.htm>.

Land application of manure setbacks are provided in the Draft Rule at <<http://www.state.oh.us/agr/LivestockRegulation/PTO-app-g.htm>> and are the same as in the USDA, NRCS Field Office Technical Guide, Section IV.

Land Application Requirements

Currently nitrogen application is based on crop needs for facilities with 1,000 animal units or more. Facilities with fewer than 1,000 animal units apply manure based on the phosphorus needs of the crops. It is recommended that liquid manure be applied on slopes of 6 percent or less. A slope of 12 percent or less is recommended for solid manure application. If a slope is 20 percent or more, manure must be incorporated into soil. Timing of manure application is based on weather and soil conditions (Jones and Sutton, 1996).

BMPs must be used in land application of manure. Manure application rates should consider the land application site's soil tests and should be based on the most limiting factor of either the nutrient content or volume/weight of the manure. The application rate for liquid manure must not exceed the limits as described in the Draft Rule, Permit To Operate, Appendix B. The application rate for liquid manure must be adjusted to avoid surface ponding or runoff from the land application site. Application rates for both nitrogen and phosphorus are described in detail in the Draft Rule located at <<http://www.state.oh.us/agr/LivestockRegulation/PTO-page.htm>>. Additional land application requirements are provided in the Draft Rule at <www.state.oh.us/agr/LivestockRegulation/PTO-app-g.htm>.

Other Requirements

Currently owners and operators of AFOs who wish to compost dead animals must obtain a certificate that shows that they have completed an educational course on composting. They must use a composting method that is in compliance with ORC 1511.02(E)(10) or an approved composting plan (ORC 1511.022).

The manure management plan requires BMP to minimize odors. The BMPs that may be used include:

- Remove, transfer, and land apply manure at optimum temperature and humidity.
- Remove, transfer, and land apply manure when wind direction is less likely to affect neighboring residences.
- Promptly inject or incorporate manure to minimize odors.
- If manure is applied by spray irrigation, use appropriate pressure and nozzles.

The Draft Rules state that no person shall own or operate a CAFF unless an Insect and Rodent Control Plan for the facility has been approved by the Director of Agriculture. An approved plan will be integrated into the Permit to Operate. The Insect and Rodent Control Plan must specify inspection intervals to be conducted of the facility and require various forms of monitoring, recording, and maintenance on a regular basis to control pests. More information regarding the Draft Rule Insect and Rodent Control Plan is provided at <www.state.oh.us/agr/LivestockRegulation/IRC-page.htm>.

The facility must follow an approved biosecurity plan.

The facility must follow an approved plan for the disposal of dead animals.

7.0 Enforcement Information

Ohio's draft regulations state if any person owning/operating a facility is managing the facility in accordance with a permit or review compliance certificate, the person will be considered in compliance with the state rules. A determination of compliance is an affirmative defense against a private civil action for nuisances involving actions covered under those permits.

Investigations may be initiated upon the observation by an agent of the Department of Agriculture, the notification by another agency, or by a written complaint from a person, indicating a violation has occurred. If the investigation indicates no violation has occurred, the agency may offer the owner/operator technical assistance. If no violation has occurred and the investigation was the result of a complaint, the agency will dismiss the complaint and notify the complainant and the owner/operator of the facility.

If an investigation indicates a violation has occurred and the owner/operator is willing to seek corrective actions, the agency will offer information and technical assistance, provide information regarding financial assistance, offer to review plans that comply with the rules, and list other actions that the owner/operator must take to correct violations and attain compliance.

If an owner/operator fails to comply to operate in a voluntary solution, the agency will ask the owner/operator by certified mail to meet and discuss the alleged violations. If the respondent fails to come to the meeting or the agency decides a violation has occurred, a Notice of Deficiencies Resulting in Noncompliance will be sent to the respondent by certified mail. This notice gives the respondent a period of time determined by the director to correct the violation and submit a compliance plan. If it is determined that the respondent has failed to implement the compliance actions, the agency will issue orders to the respondent. Each person allegedly liable for the violations shall receive an adjudication hearing. At this time if the order is not waived, the respondent will be given a specified time period to come into compliance, notification indicating available technical and financial assistance, and notification of possible actions, including civil penalties if the violation is not corrected. The respondent has the right to appeal an order by the agency under Chapter 119 of the Revised Code.

If the Director of Agriculture determines an emergency exists, requiring immediate action to protect public health or the environment, the director may issue an order without notice or an adjudication hearing. The order will take effect immediately.

A person responsible for causing or allowing an unauthorized discharge of manure is liable for applicable costs incurred to the agency. Payments are to be made within 30 days of the order.

Currently the Chief of the Division of Soil and Water Conservation has the authority to enforce state standards for animal pollution abatement.

Inspection Programs

Investigations may be initiated upon the observation by an agent of the department, the notification by another agency, or by a written complaint from a person, indicating a violation has occurred. The inspector is authorized to, enter property at reasonable times to make investigations and inspections. After the inspection the inspector will discuss the results and any recommendations that might help the facility obtain compliance. The inspector must follow all reasonable biosecurity measures required by the owner/operator.

Currently Ohio EPA and SWCD perform joint site inspections upon receiving a Site Inspection Request from operators/owners for proposed operations involving 1,000 animal units or more. Ohio EPA investigates complaints about the prohibited discharges of wastes from any size facility directly into state waters (Ohio Revised Code 6111), whether accidental or deliberate.

8.0 Voluntary Programs

Ohio DNR, Division of Soil and Water Conservation, offers voluntary compliance assistance and water pollution prevention programs. Other resources for livestock operators are available through voluntary programs administered by the Ohio State University Extension Service, Natural Resources Conservation Commission, Ohio Department of Agriculture, Ohio Department of Development, and Ohio EPA Division of Surface Water (Hutchinson, 1996).

Ohio producers are encouraged to voluntarily control pollution of state waters and they have several options for resource information. Ohio DNR, local SWCDs, and Ohio State University participate in the Manure Nutrient Management (MNM) program. This program is an intensive educational program that teaches operators how to collect, handle, store, and apply manure. The program also instructs operators on how to test manure and soil. (Specific tests were not identified by Veenhuizen et al.). Local SWCDs receive project grants from the Ohio DNR Division of Soil and Water Conservation. Projects are funded for 4 years and provide seed money to establish permanent positions. At one point, there were 22 SWCDs in 31 livestock counties of the state. Nine innovative demonstration projects totaling \$98,883 were approved (Veenhuizen et al, 2000).

In addition to its participation in MNM, Ohio DNR coordinates the activities of SWCDs and runs the Agricultural Pollution Abatement (APA) programs. Ohio DNR's Division of Soil and Water Conservation administers the Pollution Abatement Cost Sharing Program for voluntary implementation of APA. Projects are planned and approved by local SWCD Field Offices. The cost-share program annually uses \$850,000 to install best management practices (BMPs) to abate pollution by sediment and animal waste. Landowners can recover 75 percent of their cost up to \$7,500 per year (Veenhuizen et al, 2000).

Other agencies are involved in Ohio's voluntary programs. USDA-NRCS administers conservation programs and provides technical, research, educational, and financial assistance to farmers through the Ohio DNR and SWDCs. The Ohio Department of Development (ODD) helps farmers with site evaluation and selection for livestock expansion projects (Hutchinson, 1996).

9.0 Additional State-Specific Information

Cooperative Extension Service

Information regarding Ohio State University's Cooperative Extension Service can be obtained at

www.ag.ohio-state.edu/. Refer to the Voluntary Programs section for Ohio State University's Extension Service programs.

Comprehensive Nutrient Management Plan (CNMP) Certification

Ohio does not have a CNMP certification program. Ohio EPA requires approval of a livestock waste management plan (manure management plan) only for facilities with more than 1,000 animal units. The plan does not require a certified planner; however Ohio EPA and local SWCD personnel can assist farmers with completing the plans (Veenhuizen et al, 2000).

For most animal operations, the storage, handling, and application of manure are regulated by Ohio DNR which encourages all AFOs to work with their local SWCD or USDA-NRCS to develop a livestock waste management plan. The Animal Waste Pollution Abatement Program, also administered by the Ohio Department of Natural Resources, is a standard used by a Soil and Water Conservation District to determine whether a water pollution problem exists. Voluntary adoption of an approved manure nutrient management plan is suggested when the SWCD discovers a water pollution problem (Veenhuizen et al., 2000).

In 1990 Ohio DNR began a Manure Nutrient Management program in counties with the highest livestock population. Manure Nutrient Management technicians work with livestock producers to develop management plans to best manage animal manure and use it as a plant nutrient (Veenhuizen et al., 2000).

Case Studies/Innovative Programs

Ohio EPA, Division of Surface Water provides information, education, and assistance with Ohio EPA regulatory activities associated with animal waste. They assist in watershed planning, deliver financial and technical assistance, and help with local water quality monitoring activities. Ohio EPA activities are funded through section 319 of Clean Water Act and Ohio Water Pollution Control Loan Fund. Funding for operators is available through Ohio EPA Water Pollution Control Loan Fund (WPCLF). Federal section 319(h) funds are available to support local watershed-based nonpoint source projects (Hutchinson, 1996).

Livestock Manager Certification

A livestock manager certification from the Department of Agriculture is required for the following:

- An individual responsible for the management and handling of manure at a major concentrated animal feeding facility (MCAFF), including the land application and the removal of manure from a storage facility.
- Any person other than the owner/operator transporting, buying, or selling more than 4,500 dry tons of manure a year.

Certifications must be renewed after three years. Training and examinations will be provided by the department at such times determined by the department.

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Wisconsin's CAFO Program

1.0 Background

Based upon information provided to EPA by USDA in the year 2000, it is estimated that there are 720 AFOs with between 300 and 1,000 animal units and Wisconsin has issued approximately 100 permits to facilities with over 1,000 AU (Bazzel, 2000).

2.0 Lead Regulatory Agency

The Wisconsin Department of Natural Resources (DNR), Bureau of Watershed Management, Wisconsin Pollutant Discharge Elimination System (WPDES) Permit Program along with the Runoff Management Program regulates livestock operations with 1,000 AUs or more and operations with less than 1,000 AUs that have discharges that significantly affect water quality (WI DNR, 2000c).

The Wisconsin DNR is responsible for the issuance, reissuance, modification, and enforcement of all WPDES permits issued for discharges into the waters of Wisconsin. Wisconsin regulates discharges to both ground water and surface water. No person may legally discharge to state waters without a permit issued under this authority (WI DNR, 2000d).

3.0 State Regulations Regarding AFOs/CAFOs

The Wisconsin Pollutant Discharge Elimination System (WPDES) permit program was established by Chapter 283.13(1) of the Wisconsin Statutes. State wastewater regulations are found in Wisconsin Administrative Code (WAC) Chapters 100–299 and Wisconsin State Laws and Statutes (WI DNR, 2000d). The Animal Waste Management Program was developed through Wisconsin Administrative Code NR 243 to address pollution problems caused by the handling, storage, and disposal of animal waste on Wisconsin farms (WI DNR, 2000a).

Chapter Agriculture, Trade, and Consumer Protection (ATCP) 50 provides rules for constructing animal waste storage and runoff control structures, appropriately abandoning CAFOs, and information on cost-share programs.

WI DNR is currently in the process of codifying statewide performance standards and prohibitions that apply to livestock operations of all sizes. These include the following (WI DNR, 2000c):

- Manure management prohibitions
- Nutrient management
- Manure storage
- Soil loss from riparian fields

4.0 Types of Permits

NPDES

The statewide Wisconsin Pollution Discharge Elimination System (WPDES) permit is patterned after the federal NPDES permit and covers significant municipal, industrial, and animal waste facilities that discharge to the waters of the state. The WPDES permits can be general

(statewide) or specific (for individuals). The specific permits are divided into minor permits and major permits (those that are subject to oversight by EPA). CAFO operators require an Animal Waste Discharge Permit, which is one of five categories of WPDES permits issued to point source dischargers (WI DNR, 2000b).

5.0 Permit Coverage

The Animal Waste Management Program requires that WPDES permits be issued to the largest animal operations in the state, those with more than 1,000 AUs. WI DNR may determine that farms with less than 1,000 AUs must obtain a WPDES permit if that farm has discharged into state waters and/or failed to respond to a notice of discharge (WI DNR, 2000a). New and existing storage structures for all CAFOs are evaluated to determine if groundwater monitoring or storage facility upgrade is necessary (Bazzell, 2000).

6.0 Permit Conditions

Approvals

A site appraisal is necessary if a permit is required. Wisconsin requires construction approval for animal feeding operations and permits for operating those facilities.

Lagoon Design and Specifications

Design of storage structures must follow Natural Resources Conservation Service (NRCS) technical guidelines. A storage structure must have a 1-foot freeboard. Liner material may be made of clay, concrete, steel, or geomembrane. Allowable seepage is no more than 10^{-7} cm/sec (after federal requirements) or rates that meet construction standards (NASDA, 1997). Waste structures must have a storage capacity of up to 180 days. Facilities regulated under the Animal Waste Management Program that hold WPDES permits must have structures to control a 25-year storm event.

Discharge Rules

Under state law, if a permit is to allow a discharge, an evaluation must be conducted to determine if a potential discharge to groundwater exists as well as surface water (Bazzell, 2000). The discharge rules are patterned after the federal effluent limits that require no discharge. Waste lagoons must contain a 25-year, 24-hour storm event. Small facilities (fewer than 1,000) AUs are only required to design waste control structures to contain runoff from a 10-year, 24-hour storm. Wisconsin's Animal Waste Program does not grant the 25-year, 24-hour storm event exemption (Bazzell, 2000).

Waste Management Plans

Wisconsin requires manure management plans from CAFOs as part of its WPDES permit program. Currently the state regulates both wet and dry manure handling systems for poultry. (Bazzell, 2000).

A permit can be required if manure from contract farms is managed through a common system and the number of animals at the contract farms can be combined to determining whether the CAFO threshold for animal units is exceeded (Bazzell, 2000).

Separation Distances

There are no state standards for separation distance from dwellings or property lines in Wisconsin, but separation distance can be controlled at the county level through zoning. Distance from water wells is variable based on type of storage structure. Distance from the bottom of a waste structure to ground water must be at least 3 feet (NASDA, 1997).

Land Application Requirements

Nitrogen must be applied at agronomic rates. This is a requirement for permitted farms and cost-share recipients (NASDA, 1997). Wisconsin is currently developing a phosphorus index to use for land application areas (Fix, 2000). Some facilities must keep a record of disposal or land application of wastes. No commercial fertilizer is to be applied on frozen or snow-covered ground on slopes of greater than 9 percent, unless the ground is contoured with sod or contour farmed with corn residue remaining, in which case allowable slope is 12 percent maximum. Nitrogen inhibitor may be required for fall manure applications on sandy or loamy soils that are warmer than 50°F. Wastes must be incorporated if application is close to water. Wastes must be incorporated within 72 hours if application occurs up to 200 feet uphill from a sinkhole or conduit to ground water. Livestock permittees are required to maintain tolerable soil loss "T" on manure land application sites. Soil sampling every four years is required (Bazzell, 2000). More application requirements are explained in the Nutrient Management Standard 590 Criteria Summary.

7.0 Enforcement Information

About 50 livestock operations with 1,000 AUs or more have been identified and issued discharge permits. Most of the regulatory activity has involved farms with fewer than 1,000 AUs. For these, the Department responds to complaints submitted by the public. Department staff work with the Wisconsin Department of Agriculture, Trade, and Consumer Protection (DATCP) and the counties in completing the investigation and determining whether a significant water quality impact exists. If such a problem does exist, the Department issues a notice of discharge to the owner, requiring action to alleviate the animal waste discharge. The program has been particularly important because of the regulatory ability to issue permits to those refusing to respond to the notice of discharge (WI DNR, 2000a).

Inspection Programs

Routine onsite inspections are not required, although facilities with 1,000 AUs or more are subject to periodic inspections. CAFOs that are not permitted may be identified through informal monitoring networks. Inspections are complaint-driven for operations with fewer than 1,000 AUs, which form the majority of the regulatory cases in Wisconsin. In these cases, DATCP and counties assist DNR in investigating complaints and determining water quality impacts.

The facility inspection process usually follows the same pattern, beginning with an individual talking with a local conservation district (LCD) staff member or county conservationist. County staff are invited to the facility, and the farmer is notified about the visit. DATCP is invited if the county staff does not visit. Next, it is determined whether a discharge is significant, with the focus being placed on water quality impact rather than on nutrient management. If necessary, informal enforcement activities begin (Section H. Wisconsin, source unknown).

8.0 Voluntary Programs

The Nutrient Management Program in conjunction with the University of Wisconsin Extension Nutrient Management Self-Directed Team has developed a Nutrient Education Farmer Education Program. The program educates farmers about nutrient management practices for their individual programs. The curriculum is a combination of small group instruction, individual consultation, and on-farm field trials. The anticipated products of the education program are functioning nutrient management plans developed by farmers or farmer advisor teams. The pilot program began in 1999 with 11 counties participating. Most of the participants in the pilot program were dairy farmers; approximately 13 farms were enrolled per county. Many of the participants were required to develop a nutrient management plan or were in water quality management areas. The Farmer Education Curriculum will be available statewide in the fall of 2000 (University of Wisconsin-Madison, 2000a).

The University of Wisconsin-Extension Nutrient Management Self-direct Team and Nutrient and Pest Management Program hosted three workshops in August 2000 to train nutrient management planners. The 2-day workshops were designed for nutrient management plan writers, including production agronomists and county-based conservation staff involved in nutrient management programs. The workshops provided in-depth training on nutrient management plan preparation (University of Wisconsin-Madison, 2000b).

9.0 Additional State-Specific Information

Cooperative Extension Service

Information regarding the University of Wisconsin's Cooperative Extension Service can be obtained at <http://www1.uwex.edu/>. Refer to the Voluntary Programs section above for a description of some of Wisconsin's Extension Service programs.

Comprehensive Nutrient Management Plan (CNMP) Certification

WI DATCP is authorized under Act 27 to adopt rules under Wisconsin's soil and water resource management program related to nutrient management on farms. The regulations adopted under Act 27, Agriculture, Trade, and Consumer Protection (ATCP) 50, Subchapter 5-7, require a nutrient management planner to develop nutrient management plans. Nutrient management plans are required for landowners with more than 1,000 AUs and permitted livestock operations. Nutrient Management Plans are also required in counties that have manure storage ordinances, which includes 42 of Wisconsin's 72 counties (WI DATCP, 2000b).

WI DATCP administers the Soil and Water Resource Management Program. The proposal to repeal ATCP 3.02(1)(h) and re-create ATCP 50 was released in January 2000. It is not clear if the proposal is final (WI DATCP, 2000a).

Nutrient management plans must be prepared in accordance with USDA National Resources Conservation Service (NRCS) Nutrient Management Standard 590. In addition, farmers must fill out a nutrient management agreement signed by the certified planner who developed the nutrient management plan. The nutrient management agreement provides information on the existing soil fertility and optimal usage of manure, legumes, organic byproducts, and commercial fertilizers on crop lands; it also indicates that the major product will be a nutrient management plan developed in accordance with NRCS Standard 590 and Technical Note WI-1 (WI DATCP, 2000a).

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